Thermal Printer

TSP600 Series
TSP700 Series
TSP800 Series

Programmer's Manual

star

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1. OUTLINE

1-1. TSP600/700 Series

The details of each command are shown in the following sections.

The printer has two different software modes (STAR Line mode and ESC/POS mode) which can be selected using the DIP switch.
(Factory setting: STAR Line mode)

DIP Switch #1

1-1	Mode Selection
ON	STAR Line mode
OFF	ESC/POS mode

For the detailed functions and settings of the DIP switches, please refer to the User's Manual.

1-2. TSP800 Series

The details of each command are shown in the following sections.

The printer has three different software modes (STAR Line mode, STAR Pege mode, DP8340 mode and ESC/POS mode) which can be selected using the DIP switch.
(Factory setting: STAR Line mode)

DIP Switch #1

1-1	1-2	Mode Selection
ON	ON	STAR Line mode
OFF	ON	STAR Page mode
ON	OFF	DP8340 mode

For the detailed functions and settings of the DIP switches, please refer to the User's Manual.

2. STAR LINE MODE

2-1. Command Summary

The details of each command are shown in the following sections.

Commands to Select Characters

Control codes	Hexadecimal codes	Function	Page
<ESC> "R" *n*	1B 52 *n*	Select international character set	6
<ESC> "/" "1" <ESC> "/" <1>	1B 2F 31 1B 2F 01	Select slash zero	6
<ESC> "/" "0" <ESC> "/" <0>	1B 2F 30 1B 2F 00	Select normal zero	6
<ESC> "b" *n1 n2 n3 n4 d1 ...* <RS>	1B 62 *n1 n2 n3 n4 d1 ... 1E*	Select bar code printing	7
<ESC> "M"	1B 4D	Select 12-dot pitch printing	11
<ESC> "p"	1B 70	Select 14-dot pitch printing	11
<ESC> "P"	1B 50	Select 15-dot pitch printing	11
<ESC> ":"	1B 3A	Select 16-dot pitch printing	11
<ESC> <SP> *n*	1B 20 *n*	Set character spacing	11
<SO>	0E	Sets the printing magnified double in character width.	12
<DC4>	14	Resets the printing magnified in character width.	12
<ESC> "W" *n*	1B 57 *n*	Sets the magnification rate in character width.	12
<ESC> <SO>	1B 0E	Sets the printing magnified double in character height.	12
<ESC> <DC4>	1B 14	Resets the printing magnified in character height.	12
<ESC> "h" *n*	1B 68 *n*	Sets the magnification rate in character height.	13
<ESC> "i" *n1 n2*	1B 69 *n1 n2*	Sets the magnification rates in character width and height.	13
<ESC> "–" "1" <ESC> "–" <1>	1B 2D 31 1B 2D 01	Select underlining	13
<ESC> "–" "0" <ESC> "–" <0>	1B 2D 30 1B 2D 00	Cancel underlining	13
<ESC> "_" "1" <ESC> "_" <1>	1B 5F 31 1B 5F 01	Select upperlining	14
<ESC> "_" "0" <ESC> "_" <0>	1B 5F 30 1B 5F 00	Cancel upperlining	14

Control codes	Hexadecimal codes	Function	Page
<ESC> “4”	1B 34	Select highlight printing	14
<ESC> “5”	1B 35	Cancel highlight printing	14
<SI>	0F	Inverted printing	14
<DC2>	12	Cancel inverted printing	14
<ESC> “E”	1B 45	Select emphasized printing	15
<ESC> “F”	1B 46	Cancel emphasized printing	15
<ESC><GS> “t” *n*	1B 1D *74 n*	Select character code table	15

Commands to Set the Page Format

Control codes	Hexadecimal codes	Function	Page
<ESC> “C” *n*	1B 43 *n*	Set page length in lines	16
<ESC> “C” <0> *n*	1B 43 00 *n*	Set page length in inches	16
<ESC> “N” *n*	1B 4E *n*	Set bottom margin	16
<ESC> “O”	1B 4F	Cancel bottom margin	17
<ESC> “l” *n*	1B 6C *n*	Set left margin	17
<ESC> “Q” *n*	1B 51 *n*	Set right margin	17

Commands to Move the Print Position

Control codes	Hexadecimal codes	Function	Page
<LF>	0A	Line feed	18
<CR>	0D	Carriage Return (same as LF)	18
<ESC> “a” *n*	1B 61 *n*	Feed paper *n* lines	18
<FF>	0C	Form feed	18
<HT>	09	Horizontal tab	18
<VT>	0B	Vertical tab	19
<ESC> “z” “1” <ESC> “z” <1>	1B 7A 31 1B 7A 01	Set line spacing to 4 mm	19
<ESC> “0”	1B 30	Set line spacing to 3 mm	19
<ESC> “J” n	1B 4A *n*	One time n/4 mm feed	19
<ESC>“I” n	1B 49 *n*	One time n/8 mm feed	20
<ESC> “B” *n1 n2* ... <0>	1B 42 *n1 n2* ... 00	Set vertical tab stops	20
<ESC> “D” *n1 n2* ... <0>	1B 44 *n1 n2* ... 00	Set horizontal tab stops	20
<ESC> <GS>“A” *n1 n2*	1B 1D 41 *n1 n2*	Absolute position setting	21
<ESC> <GS>“R” *n1 n2*	1B 1D 52 *n1 n2*	Relative position setting	21
<ESC> <GS>“a” *n*	1B 1D 61 *n*	Alignment	22

Commands to Print Dot Graphics

Control codes	Hexadecimal codes	Function	Page
<ESC> "K" *n* <0> *m1 m2 ...*	1B 4B *n* 00 *m1 m2 ...*	Print normal density graphics	23
<ESC> "L" *n1 n2 m1 m2 ...*	1B 4C *n1 n2 m1 m2 ...*	Print high density graphics	25
<ESC> "k" *n* <0> *d1 ...*	1B 6B *n* 00 *d1 ...*	Print fine density graphics	26
<ESC> "X" *n1 n2 d1 ...*	1B 58 *n1 n2 d1 ...*	Print fine density graphics	29
<ESC> <FS> "q" *n [x11 x12 y11 y12 d [k1]]1 ...*	1B 1C *71 n [x11 x12 y11 y12 d [k1]]1 ...*	Define logo data	30
<ESC> <FS>"p" *n m*	1B 1C 70 *n m*	Print logo image	32

Commands to Print Download Characters

Control codes	Hexadecimal codes	Function	Page
<ESC> "&" <1> <1> *n m1 m2 ... m48*	1B 26 01 01 *n m1 m2 ... m48*	Define download character	33
<ESC> "&" <1> <0> *n*	1B 26 01 00 *n*	Delete a download character	34
<ESC> "%" "1" <ESC> "%" <1>	1B 25 31 1B 25 01	Enable download character set	34
<ESC> "%" "0" <ESC> "%" <0>	1B 25 30 1B 25 00	Disable download character set	34

Commands to Control Peripheral Devices

Control codes	Hexadecimal codes	Function	Page
<ESC> <BEL> *n1 n2*	1B 07 *n1 n2*	Define drive pulse width for peripheral device	35
<BEL>	07	Control peripheral device #1	35
<FS>	1C	Control peripheral device #1	35
<EM>	19	Control peripheral device #2	35
<SUB>	1A	Control peripheral device #2	35

Commands to Control Auto Cutter

Control codes	Hexadecimal codes	Function	Page
<ESC> "d" "*n*"	1B 64 *n*	Cut command to the auto cutter	36
<ESC> "d" "*t*"	1B 64 *74*	Feed to the tear bar position (TSP600 only)	36

Other Commands

Control codes	Hexadecimal codes	Function	Page
<CAN>	18	Cancel last line & Initialize printer	37
<ESC> <GS> "# m N *n1 n2 n3 n4* "<LF> <NUL>	1B 1D 23 m N *n1 n2 n3 n4* 0A 00	Set memory switch	37
<ESC> "@"	1B 40	Initialize printer	41
<ENQ>	05	Request status	41
<EOT>	04	Request status	42
<ESC> <ACK> <SOH>	1B 06 01	Request status	42
<ESC> <RS> "a" *n*	1B 1E 61 *n*	Set status transmission condition	45
<ESC> "?" <LF> <NUL>	1B 3F 0A 00	Reset printer hardware	45

2-2. Command Specification

Commands to Select Characters

FUNCTION Select international character set

CODE <ESC> "R" *n*

HEX 1B 52 *n*

REMARKS Selects an international character set according to the value of *n*, as shown below:

n	Character set	*n*	Character set
0	U.S.A.	8	Japan
1	France	9	Norway
2	Germany	10	Denmark II
3	England	11	Spain II
4	Denmark I	12	Latin America
5	Sweden	13	Korea
6	Italy	14	Ireland
7	Spain I	64	Legal

FUNCTION Select zero style

CODE <ESC> "/" *n*

HEX 1B 2F *n*

REMARKS Causes subsequent zero characters to be printed with a slash when *n* is 1, and without a slash when *n* is 0.
The value of *n* can be set to 0(00H) or "0"(30H), or 1(01H) or "1"(31H).

FUNCTION Select bar code printing

CODE <ESC> "b" *n1* *n2* *n3* *n4* *di* ... *dk* <RS>

HEX 1B 62 *n1* *n2* *n3* *n4* *di* ... *dk* 1E

REMARKS Prints bar code according to the value of *n1*, as shown below:

n1: Type of bar code

0	UPC-E
1	UPC-A
2	JAN/EAN-8
3	JAN/EAN-13
4	CODE 39
5	ITF
6	CODE 128
7	CODE 93
8	NW-7

The value of *n1* can be set to 0(00H) or 8(08H) to "0"(30H) to "8"(38H).

n2: Printing character below bar code or line feed

1	Character below bar code is not printed, Line feed is performed after execution of command.
2	Character below bar code is printed, Line feed is performed after execution of command.
3	Character below bar code is not printed, Line feed is not performed after execution of command.
4	Character below bar code is printed, Line feed is not performed after execution of command.

The value of *n2* can be set to 1(01H) to 4(04H) or "1"(31H) to "4"(34H).

n3: Mode of bar code

UPC-E, UPC-A, JAN/EAN-8, JAN/EAN-13, CODE 128, CODE 93

1	Minimum module 2 dots
2	Minimum module 3 dots
3	Minimum module 4 dots

CODE 39, NW-7, ITF

		CODE 39, NW-7	ITF
1	Narrow : wide	2:6 dots	2:5 dots
2	Narrow : wide	3:9 dots	4:10 dots
3	Narrow : wide	4:12 dots	6:15 dots
4	Narrow : wide	2:5 dots	2:4 dots
5	Narrow : wide	3:8 dots	4:8 dots
6	Narrow : wide	4:10 dots	6:12 dots
7	Narrow : wide	2:4 dots	2:6 dots
8	Narrow : wide	3:6 dots	3:9 dots
9	Narrow : wide	4:8 dots	4:12 dots

When either of UPC-E, UPC-A, JAN/EAN-8, JAN/EAN-13, CODE128 or CODE93 is selected, 1(01H) to 3(03H) or "1"(31H) to "3"(33H) can be set. When either of CODE39, NW-7 or ITF is selected, 1(01H) to 9(09H) or "1"(31H) to "9"(39H) can be set.

n4: Height of bar code
Can be up to 255 dots (31.9mm).
If the bar code height is larger than the line feed amount, the line feed amount is automatically multiplied by an integer.

di...dk: Bar code data

UPC-E: k = 11 (or 12)
The check digit at the 12th digit is automatically added, and ignored even if it is specified.
If the data cannot be abbreviated, the command is ignored. Data conversion to the abbreviation is automatically executed.

UPC-A: k = 11 (or 12)
The check digit at the 12th digit is automatically added, and ignored even if it is specified.

JAN/EAN-8: k = 7 (or 8)
The check digit at the 8th digit is automatically added, and ignored even if it is specified.

JAN/EAN-13: k = 12 (or 13)
The check digit at the 13th digit is automatically added, and ignored even if it is specified.

CODE39: The value of k is optional, and the maximum value also differs according to the modes.
The start/stop code ("∗") is automatically added.

ITF: The value of k is optional, and the maximum value also differs according to the modes.
If the data is number of an odd digits, 0 is automatically added at the beginning of the data.

CODE 128: The value of k is optional, and the maximum value also differs according to the modes and the types of character number.
The check character is automatically added.

CODE93: The value of k is optional, and the maximum value also differs according to the modes and the types of character.
The check characters (C and K) are automatically added.

NW-7: The value of k is optional, and the maximum value also differs according to the modes and the types of character number .
The start/stop code is also contained in the data (it is not automatically added).

The bar code printing start position is at the upper end of the current line.
If the bar code is positioned beyond the right margin, neither the bar code nor the character below the bar code will be printed.

Data of CODE 128 and CODE 93

When <LF> is used in a command, some kinds of control code cannot be sent by the host PC. The control code should be sent as the data as shown below:

- When sending the following data, express as a set of two characters.

Express “% (25H)” as “%0 (25H30H)”.
Add “40H - 5FH” after “%” for the control codes (00H - 1FH).
Express the control code (7FH) as “%5(25H35H)”.
Add “1 - 4 (31H - 34H)” after “%” for the function code.
Add “6 - 8 (36H - 38H)” after “%” for the start code.

3) 2-character codes

Control codes

CODE	FORMAT
NUL 00H	%@ 25H 40H
SOH 01H	%A 25H 41H
STX 02H	%B 25H 42H
ETX 03H	%C 25H 43H
EOT 04H	%D 25H 44H
ENQ 05H	%E 25H 45H
ACK 06H	%F 25H 46H
BEL 07H	%G 25H 47H
BS 08H	%H 25H 48H
HT 09H	%I 25H 49H
LF 0AH	%J 25H 4AH
VT 0BH	%K 25H 4BH
FF 0CH	%L 25H 4CH
CR 0DH	%M 25H 4DH
SO 0EH	%N 25H 4EH
SI 0FH	%O 25H 4FH
DLE 10H	%P 25H 50H
DC1 11H	%Q 25H 51H
DC2 12H	%R 25H 52H
DC3 13H	%S 25H 53H
DC4 14H	%T 25H 54H
NAK 15H	%U 25H 55H
SYN 16H	%V 25H 56H
ETB 17H	%W 25H 57H
CAN 18H	%X 25H 58H
EM 19H	%Y 25H 59H
SUB 1AH	%Z 25H 5AH
ESC 1BH	%[25H 5BH
FC 1CH	%¥ 25H 5CH
GS 1DH	%] 25H 5DH
RS 1EH	%^ 25H 5EH
US 1FH	%_ 25H 5FH
DEL 7FH	%5 25H 35H

Special code

CODE	FORMAT
% 25H	%0 25H 30H

Function codes

CODE	FORMAT	
FNC1	%1 25H 31H	☆
FNC2	%2 25H 32H	☆
FNC3	%3 25H 33H	☆
FNC4	%4 25H 34H	☆

Start codes

CODE	FORMAT	
START A	%6 25H 36H	☆
START B	%7 25H 37H	☆
START C	%8 25H 38H	☆

☆ For CODE 128 only.

FUNCTION Select 12-dot pitch printing

CODE <ESC> "M"

HEX 1B 4D

REMARKS Prints 12-dot pitch characters without an extra space.

FUNCTION Select 14-dot pitch printing

CODE <ESC> "p"

HEX 1B 70

REMARKS Prints 12-dot pitch characters with 2-dot spacing between characters.

FUNCTION Select 15-dot pitch printing

CODE <ESC> "P"

HEX 1B 50

REMARKS Prints 12-dot pitch characters with 3-dot spacing between characters.

FUNCTION Select 16-dot pitch printing

CODE <ESC> ":"

HEX 1B 3A

REMARKS Prints 12-dot pitch characters with 4-dot spacing between characters.

FUNCTION Set the character spacing

CODE <ESC> <SP> *n*

HEX 1B 20 *n*

REMARKS Sets the space between characters to *n* dots, where *n* is a number from 0 to 15.

FUNCTION Sets the printing magnified double in character width.

CODE <SO>

HEX 0E

REMARKS Prints the subsequent data including a character spacing set by <ESC><SP> *n*, magnified double in character width.

FUNCTION Resets the printing magnified in character width.

CODE <DC4>

HEX 14

REMARKS Resets the printing magnified in character width set by <SO>, <ESC>"W"*n* and <ESC>"i"*n1n2*.

FUNCTION Sets the magnification rate in character width.

CODE <ESC> "W" *n*

HEX 1B 57 *n*

REMARKS Prints the subsequent data including a character spacing set by <ESC><SP> *n*, magnified in character width by a rate specified by the value of *n*.

n	Character width	*n*	Character width
0	Unmagnify	3	Quadruple
1	Double	4	Quintuple
2	Triple	5	Sextuple

The value of *n* can be set to 0(00H) to 5(05H) or "0"(30H) to "5"(35H).

FUNCTION Sets the printing magnified double in character height.

CODE <ESC> <SO>

HEX 1B 0E

REMARKS Prints the subsequent data magnified double in character height.

FUNCTION Resets the printing magnified in character height.

CODE <ESC><DC4>

HEX 1B 14

REMARKS Resets the printing magnified in character height set by <ESC><SO>, <ESC>"h"*n* and <ESC>"i"*n1n2*.

FUNCTION Sets the magnification rate in character height.

CODE <ESC> "h" *n*

HEX 1B 68 *n*

REMARKS Prints the subsequent data magnified in character height by a rate specified by the value of *n*.

n	Character height	*n*	Character height
0	Unmagnify	3	Quadruple
1	Double	4	Quintuple
2	Triple	5	Sextuple

The value of *n* can be set to 0(00H) to 5(05H) or "0"(30H) to "5"(35H).

FUNCTION Sets the magnification rates in character width and height.

CODE <ESC> "i" *n1 n2*

HEX 1B 69 *n1 n2*

REMARKS Prints the subsequent data in the size specified by *n1*, *n2*. *n1* indicates the height magnification and *n2* indicates the width magnification.

n1 (*n2*) = 0 Normal height (or width) size.
1 Double height (or width) size.
2 Triple height (or width) size.
3 Quadruple height (or width) size.
4 Quintuple height (or width) size.
5 Sextuple height (or width) size.

The values of *n1*, *n2* are 0(00H) to 5(05H) or "0"(30H)" to "5"(35H).

FUNCTION Underlining

CODE <ESC> "–" *n*

HEX 1B 2D *n*

REMARKS When the value of *n* is 1, underlines the subsequent data including a character spacing set by <ESC><SP> *n*.
The part to be skipped by the horizontal tab setting and the block graphic characters are not underlined.
Resets the underline mode when the value of *n* is 0.
The value of *n* can be set to 0(00H) or "0"(30H), or 1(01H) or "1"(31H).

FUNCTION Upperlining

CODE <ESC> "_" *n*

HEX 1B 5F *n*

REMARKS When the value of *n* is 1, upperlines the subsequent data including a character spacing set by <ESC><SP> *n*.
The part to be skipped by the horizontal tab setting and the block graphic characters are not upperlined.
Resets the upperline mode when the value of *n* is 0.
The value of *n* can be set to 0(00H) or "0"(30H), or 1(01H) or "1"(31H).

FUNCTION Select highlight printing

CODE <ESC> "4"

HEX 1B 34

REMARKS Prints the subsequent data including a character spacing set by <ESC><SP> *n* highlighted.
The part to be skipped by the horizontal tab setting is not highlighted.

FUNCTION Cancel highlight printing

CODE <ESC> "5"

HEX 1B 35

REMARKS Cancels highlight printing.

FUNCTION Inverted printing

CODE <SI>

HEX 0F

REMARKS Causes subsequent characters to be inverted.

FUNCTION Cancel inverted printing

CODE <DC2>

HEX 12

REMARKS Cancels inverted printing.

FUNCTION Select emphasized printing

CODE <ESC> “E”

HEX 1B 45

REMARKS Causes subsequent characters to be emphasized.

FUNCTION Cancel emphasized printing

CODE <ESC> “F”

HEX 1B 46

REMARKS Cancels emphasized printing.

FUNCTION Select character code table

CODE <ESC> <GS> “t” *n*

HEX 1B 1D 74 *n*

REMARKS Selects code page according to the value of *n*, as shown below:

n (Hex)	Character Table	n(Hex)	Character Table
(00)H	Normal*	(15)H	Codepage 874 (Thai)
(01)H	CodePage437 (USA, Std. Europe)	(20)H	Codepage 1252 (Windows Latin-1)
(02)H	Katakana	(21)H	Codepage 1250 (Windows Latin-2)
(03)H	CodePage437 (USA, Std. Europe)	(22)H	Codepage 1251 (Windows Cyrillic)
(04)H	Codepage 858 (Multilingual)	(40)H	Codepage 3840 (IBM-Russian)
(05)H	Codepage 852 (Latin-2)	(41)H	Codepage 3841 (Gost)
(06)H	Codepage 860 (Portuguese)	(42)H	Codepage 3843 (Polish)
(07)H	Codepage 861 (Icelandic)	(43)H	Codepage 3844 (CS2)
(08)H	Codepage 863 (Canadian French)	(44)H	Codepage 3845 (Hungarian)
(09)H	Codepage 865 (Nordic)	(45)H	Codepgae 3846 (Turkish)
(0A)H	Codepage 866 (Cyrillic Russian)	(46)H	Codepage 3847 (Brazil-ABNT)
(0B)H	Codepage 855 (Cyrillic Bulgarian)	(47)H	Codepage 3848 (Brazil-ABICOMP)
(0C)H	Codepage 857 (Turkish)	(48)H	Codepage 1001 (Arabic)
(0D)H	Codepage 862 (Hebrew)	(49)H	Codepage 2001 (Lithuanian-KBL)
(0E)H	Codepage 864 (Arabic)	(4A)H	Codepage 3001 (Estonian-1)
(0F)H	Codepage 737 (Greek)	(4B)H	Codepage 3002 (Estonian-2)
(10)H	Codepage 851 (Greek)	(4C)H	Codepage 3011 (Latvian-1)
(11)H	Codepage 869 (Greek)	(4D)H	Codepage 3012 (Latvian-2)
(12)H	Codepage 928 (Greek)	(4E)H	Codepage 3021 (Bulgarian)
(13)H	Codepage 772 (Lithuanian)	(4F)H	Codepage 3041 (Maltese)
(14)H	Codepage 774 (Lithuanian)	(FF)H	User Setting (Blank Code Page)

Commands to Set the Page Format

FUNCTION Set page length in lines

CODE <ESC> "C" *n*

HEX 1B 43 *n*

REMARKS Sets the page length using the current line spacing, where *n* is between 1 and 127.
Changing the line spacing later does not alter the physical page length.
The current line becomes the top of the page.
Resets the bottom margin.
Invalid when start position detect is ON.

FUNCTION Set page length in inches

CODE <ESC> "C" <0> *n*

HEX 1B 43 00 *n*

REMARKS Sets the page length to $n \times 24$ mm, where *n* is between 1 and 22.
Changing the line spacing later does not alter the physical page length.
The current line becomes the top of the page.
Resets the bottom margin.
Invalid when start position detect is ON.

FUNCTION Set bottom margin

CODE <ESC> "N" *n*

HEX 1B 4E *n*

REMARKS Sets the bottom margin to *n* lines at the current line spacing, where *n* is between 0 and 255.
Changing the line spacing later does not alter the bottom margin.
Bottom margin is reset when you change the page length.
Setting is invalid if the printing area on one page is 36 mm or less.
Invalid when start position detect is ON.

FUNCTION Cancel bottom margin

CODE <ESC> "O"

HEX 1B 4F

REMARKS Cancels the bottom margin.
Invalid when start position detect is ON.

FUNCTION Set left margin

CODE <ESC> "l" *n*

HEX 1B 6C *n*

REMARKS Sets the left margin at column *n* (where *n* is between 0 and 255) at the current character pitch.
The left margin does not move if the character pitch is changed later.
Setting is invalid if the printing area for one line would be 36mm or less.

FUNCTION Set right margin

CODE <ESC> "Q" *n*

HEX 1B 51 *n*

REMARKS Sets the right margin at column *n* (where *n* is between 0 and 255) at the current character pitch.
The right margin does not move if the character pitch is changed later.
Setting is invalid if the printing area for one line would be 36mm or less.

Commands to Move the Print Position

FUNCTION Line feed

CODE <LF>

HEX 0A

REMARKS Prints the current line and feeds the paper to the next line. If there is no data to print, only line feed is performed.

FUNCTION Carriage return

CODE <CR>

HEX 0D

REMARKS Prints the current line and feeds the paper to the next line. This command is ignored when CR code is invalid.

FUNCTION Feed paper *n* lines

CODE <ESC> "a" *n*

HEX 1B 61 *n*

REMARKS Prints the current line and feeds the paper *n* lines (where *n* is between 1 and 127).

FUNCTION Form feed

CODE <FF>

HEX 0C

REMARKS Feeds the paper to the top of the next page, according to the page length set by <ESC>"C"*n* or <ESC>"C"<0>*n* when print start position detect is ON, and according to the sensor output when print start detect is OFF. The print position is at the left margin in both cases.

FUNCTION Horizontal tab

CODE <HT>

HEX 09

REMARKS Moves the print position to the next horizontal tab stop. Ignored if there is no next horizontal tab stop on the current line.

FUNCTION Vertical tab

CODE <VT>

HEX 0B

REMARKS When start position detect is invalid, feeds the paper to the next vertical tab stop and moves the print position to the left margin.
If no vertical tabs are set, this command is ignored.
Performs a line feed if the current line is at or below the last vertical tab stop.
This command is ignored when start position detect is valid.

FUNCTION Set line spacing to 4 mm

CODE <ESC> “z” “1” or <ESC> “z” <1>

HEX 1B 7A 31 or 1B 7A 01

REMARKS Sets the distance the paper advances in subsequent line feeds to 4 mm.

FUNCTION Set line spacing to 3 mm

CODE <ESC> “0”

HEX 1B 30

REMARKS Sets the distance the paper advances in subsequent line feeds to 3 mm.

FUNCTION One time n/4 mm feed

CODE <ESC> “J” *n*

HEX 1B 4A *n*

REMARKS Performs a line feed of *n*/4mm once only.
The value of *n* is 1 to 255.
Space setting for lines is not changed.

FUNCTION One time n/8 mm feed

CODE <ESC> "I" *n*

HEX 1B 49 *n*

REMARKS Performs a line feed *n*/8mm once only.
The value of *n* is 1 to 255.
Space setting for lines is not changed.

FUNCTION Set vertical tab stops

CODE <ESC> "B" *n1* *n2* ... <0>

HEX 1B 42 *n1* *n2* ... 00

REMARKS Cancels all current vertical tab stops and sets new vertical tab stops at lines *n1*, *n2*, etc., where *n1*, *n2*, etc. are numbers between 1 and 255. A maximum of 16 vertical tab stops can be set.
The tab stops must be specified in ascending order; any violation of ascending order terminates the tab stop list. Standard termination is by the <0> control code.
The vertical tab stops are set in terms of the current line spacing and do not move if the line spacing is changed later.
Invalid when start position detect is valid.
<ESC> "B" <0> cancels all vertical tab.

FUNCTION Set horizontal tab stops

CODE <ESC> "D" *n1* *n2* ... <0>

HEX 1B 44 *n1* *n2* ... 00

REMARKS Cancels all current horizontal tab stops and sets new tab stops at columns *n1*, *n2*, etc. at the current character pitch, where *n1*, *n2*, etc. are numbers between 1 and 255. A maximum of 16 horizontal tab stops can be set.
The tab stops must be specified in ascending order; any violation of ascending order terminates the tab stop list. Standard termination is by the <0> control code.
The horizontal tab stops are set in terms of the current character pitch and do not move if the character pitch is changed later.
<ESC> "D" <0> cancels all horizontal tab.

FUNCTION Absolute position setting

CODE <ESC> <GS> "A" *n1* *n2*

HEX 1B 1D 41 *n1* *n2*

REMARKS Sets the absolute position based on the left margin position for starting the next printing.
$0 \leqq n1, n2 \leqq 255$
The start of the next printing is the ($n1 + n2 \times 256$ dot) position from the left margin position.
Settings that exceed the print area are ignored.

FUNCTION Relative position setting

CODE <ESC> <GS> "R" *n1* *n2*

HEX 1B 1D 52 *n1* *n2*

REMARKS Sets the relative position based on the current position for starting the next printing.
$0 \leqq n1, n2 \leqq 255$
The start of the next printing is the ($n1 + n2 \times 256$ dot) position from the current position.

1. Settings that exceed the printing area are ignored.
2. When set in the right direction from the current position with regard to the character direction, this specifies positive integers and when set in the left direction, this specifies negative integers.
3. Negative integers are shown with the compliment 65536. For example, if moving N pitches in the left direction: $n1 + n2 \times 256 = 65536 - N$.

FUNCTION Alignment

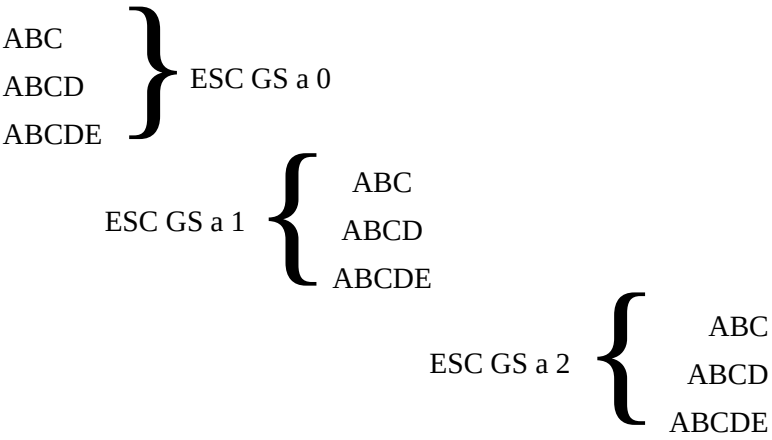
CODE <ESC> <GS> “a” *n*

HEX 1B 1D 61 *n*

REMARKS Lines up all print data in one line to the specified position. Alignment positions are shown below.

n	Alignment Position
0	Left
1	Center
2	Right

The value of n can be set to 0 (00H) to 2 (02H) or "0" (30H) to "2"(32H).



1. Enabled only when input at the beginning of the line.
2. Aligns positions in the set printing width.
3. Position alignment occurs for the data that is skipped using the following commands.

   a. Horizontal tab (HT)

   b. Absolute position (ESC GS A)

   c. Relative position (ESC GS R)

Commands to Print Dot Graphics

FUNCTION Print normal density graphics

CODE <ESC> "K" *n1* *n2* *d1...dk* [k = *n1* + *n2* × 256]

HEX 1B 4B *n1* *n2* *d1...dk* [k = *n1* + *n2* × 256]

Prints normal density dot graphics. The graphics image is 24 dots high and *(n1+n2* × 256) × 3 dots wide.

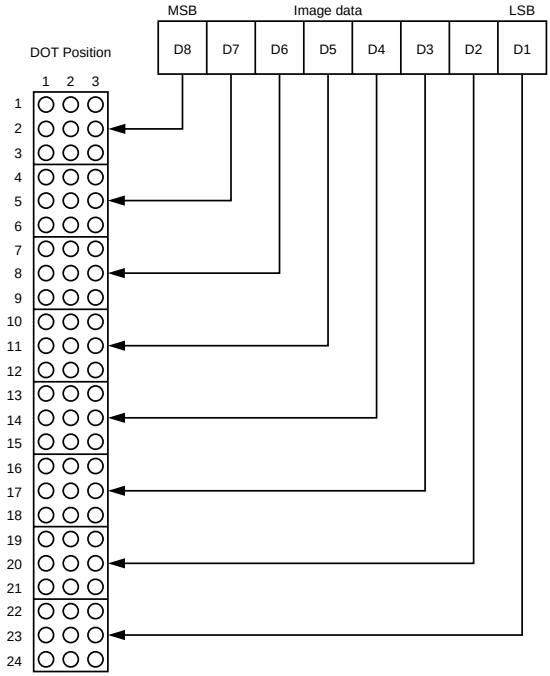
d1, *d2*, ... are the dot data, each a 1-byte value from 0 to 255 representing 24 vertical dots, with the most significant bit representing the top three and the least significant bit representing the bottom three.

<Print area>

104mm	(TSP800)	:1 ≦ *n1* + *n2* × 256 ≦ 277
72mm	(TSP600/700)	:1 ≦ *n1* + *n2* × 256 ≦ 192
52.5mm	(TSP700)	:1 ≦ *n1* + *n2* × 256 ≦ 140
80mm	(TSP700)	:1 ≦ *n1* + *n2* × 256 ≦ 213
50.8mm	(TSP600/700)	:1 ≦ *n1* + *n2* × 256 ≦ 135

Dots beyond the right margin are ignored.

Relationship between image data and print dots



EXAMPLE We will create the design below using a bit image.

	d 1	d 2	d 3	d 4	d 5	d 6	d 7	d 8	d 9	d10	d11	d12	d13	d14	d15	d16	d17	d18	d19	d20	d21	d22	d23	d24	d25	d26	d27	d28	d29	d30
D_8																														
D_7				●		●																								
D_6			●					●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
D_5		●	●	●	●	●	●	●		●	●			●	●			●			●			●			●	●		
D_4		●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
D_3		●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
D_2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
D_1	●			●	●			●	●							●	●								●	●				

First, since the volume of data is 30, *n1* = (1E)H. If the data *d1* ~ *d30* is converted to hexadecimal, it appears as shown below.

Data	Binary	Hexa-decimal
d1	00000001	01
d2	00011110	1E
d3	00111110	3E
d4	01011111	5F
d5	00011111	1F
d6	01011110	5E
d7	00011110	1E
d8	00111111	3F
d9	00101111	2F
d10	00111110	3E

Data	Binary	Hexa-decimal
d11	00111110	3E
d12	00000010	02
d13	00000010	02
d14	00111110	3E
d15	00111110	3E
d16	00101111	2F
d17	00101111	2F
d18	00111110	3E
d19	00101110	2E
d20	00101110	2E

Data	Binary	Hexa-decimal
d21	00111110	3E
d22	00101110	2E
d23	00101110	2E
d24	00111110	3E
d25	00101111	2F
d26	00101111	2F
d27	00111110	3E
d28	00111110	3E
d29	00000010	02
d30	00000010	02

Printing Sample

FUNCTION Print high density graphics

CODE <ESC> "L" *n1* *n2* *d1...dk* [k = *n1* + *n2* × 256]

HEX 1B 4C *n1* *n2* *d1...dk* [k = *n1* + *n2* × 256]

REMARKS Prints high density dot graphics. The graphics image is 24 dots high and *n1* + *n2* × 256 dots wide.

d1, *d2*, ... are the dot data, each a 1-byte value from 0 to 255 representing 24 vertical dots, with the most significant bit representing the top three and the least significant bit representing the bottom three.

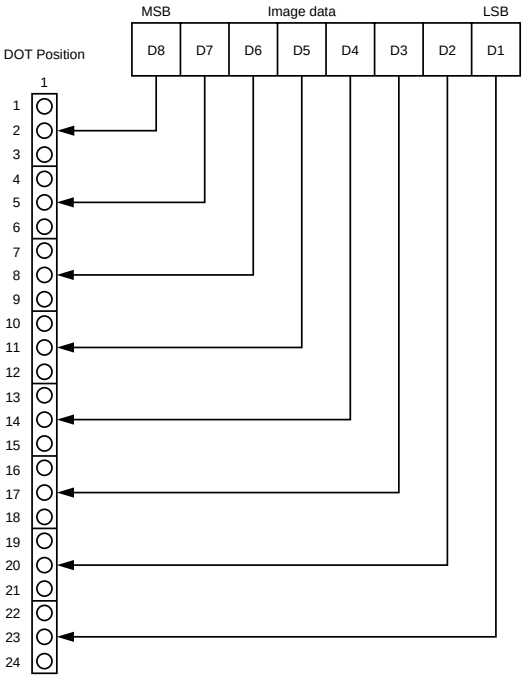
The number of data bytes must be *n1* + *n2* × 256.

<Print area>

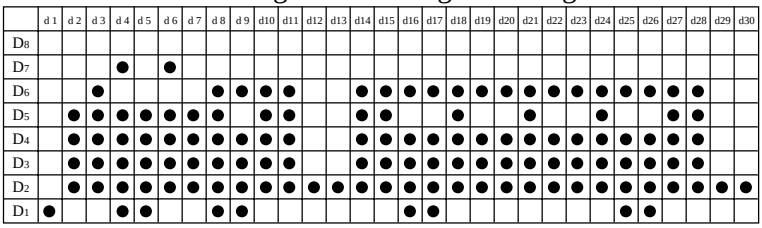
104mm	(TSP800)	:1 ≦ *n1* + *n2* × 256 ≦832
72mm	(TSP600/700)	:1 ≦ *n1* + *n2* × 256 ≦576
52.5mm	(TSP700)	:1 ≦ *n1* + *n2* × 256 ≦420
80mm	(TSP700)	:1 ≦ *n1* + *n2* × 256 ≦640
50.8mm	(TSP600/700)	:1 ≦ *n1* + *n2* × 256 ≦406

Dots beyond the right margin are ignored.

Relationship between image data and print dots



EXAMPLE We will create the design below using a bit image.



First, since the volume of data is 30, *n1* = (1E)H. If the data *d1* ~ *d30* is converted to hexadecimal, it appears as shown below.

Data	Binary	Hexa-decimal	Data	Binary	Hexa-decimal	Data	Binary	Hexa-decimal
d1	00000001	01	*d11*	00111110	3E	*d21*	00111110	3E
d2	00011110	1E	*d12*	00000010	02	*d22*	00101110	2E
d3	00111110	3E	*d13*	00000010	02	*d23*	00101110	2E
d4	01011111	5F	*d14*	00111110	3E	*d24*	00111110	3E
d5	00011111	1F	*d15*	00111110	3E	*d25*	00101111	2F
d6	01011110	5E	*d16*	00101111	2F	*d26*	00101111	2F
d7	00011110	1E	*d17*	00101111	2F	*d27*	00111110	3E
d8	00111111	3F	*d18*	00111110	3E	*d28*	00111110	3E
d9	00101111	2F	*d19*	00101110	2E	*d29*	00000010	02
d10	00111110	3E	*d20*	00101110	2E	*d30*	00000010	02

Horizontal density is three times that of the bit image for <ESC>"k". (Compare the print samples.)

Printing Sample

FUNCTION Print fine density bit image

CODE <ESC> "k" *n* <0> *d1...dk* [k = *n* × 24]

HEX 1B 6B *n* 00 *d1...dk* [k = *n* × 24]

REMARKS Prints a bit image using 1 horizontal dot and 1 vertical dot for 1 dot of input data.

<Print area>

104mm (TSP800) : $1 \leqq n \leqq 104$
72mm (TSP600/700) : $1 \leqq n \leqq 72$
52.5mm (TSP700) : $1 \leqq n \leqq 52$
80mm (TSP700) : $1 \leqq n \leqq 80$
50.8mm (TSP600/700) : $1 \leqq n \leqq 50$

Relationship between image data and print dots

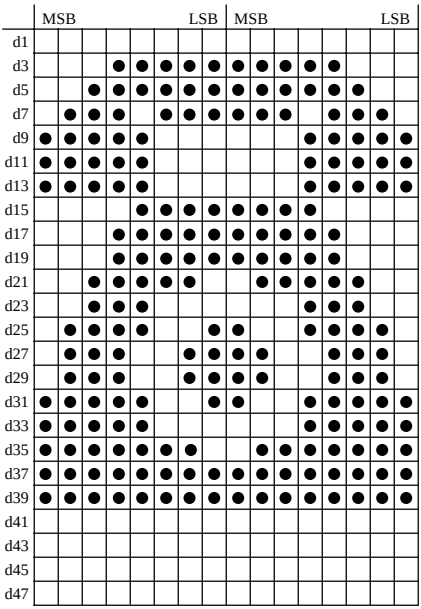
Image data

b7	b6	b5	b4	b3	b2	b1	b0

Dot position

d_1 $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_2 $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_n $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{2n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{2n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{2n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{3n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{3n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{3n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{4n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{4n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{4n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{5n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{5n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{5n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{6n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{6n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{6n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{7n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{7n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{7n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{8n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{8n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{8n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{9n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{9n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{9n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{10n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{10n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{10n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{11n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{11n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{11n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{12n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{12n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{12n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{13n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{13n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{13n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{14n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{14n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{14n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{15n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{15n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{15n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{16n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{16n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{16n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{17n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{17n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{17n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{18n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{18n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{18n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{19n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{19n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{19n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{20n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{20n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{20n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{21n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{21n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{21n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{22n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{22n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{22n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{23n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$
d_{23n+1} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	d_{23n+2} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$	● ● ●	d_{24n} $b_7\ b_6\ b_5\ b_4\ b_3\ b_2\ b_1\ b_0$

EXAMPLE



Printing Sample

☎

Data	Binary	Hexa-decimal	Data	Binary	Hexa-decimal
d1	00000000	00	d2	00000000	00
d3	00011111	1F	d4	11111000	F8
d5	00111111	3F	d6	11111100	FC
d7	01110111	77	d8	01110111	EE
d9	11111000	F8	d10	00011111	1F
d11	11111000	F8	d12	00011111	1F
d13	11111000	F8	d14	00011111	1F
d15	00001111	0F	d16	11110000	F0
d17	00011111	1F	d18	11111000	F8
d19	00011111	1F	d20	11111000	F8
d21	00111110	3E	d22	01111100	7C
d23	00111000	38	d24	00011100	1C
d25	011111001	79	d26	10011110	9E
d27	01110011	73	d28	11001110	CE
d29	01110011	73	d30	11001110	CE
d31	11111001	F9	d32	10011111	9F
d33	11111000	F8	d34	00011111	1F
d35	11111110	FE	d36	01111111	7F
d37	11111111	FF	d38	11111111	FF
d39	11111111	FF	d40	11111111	FF
d41	00000000	00	d42	00000000	00
d43	00000000	00	d44	00000000	00
d45	00000000	00	d46	00000000	00
d47	00000000	00	d48	00000000	00

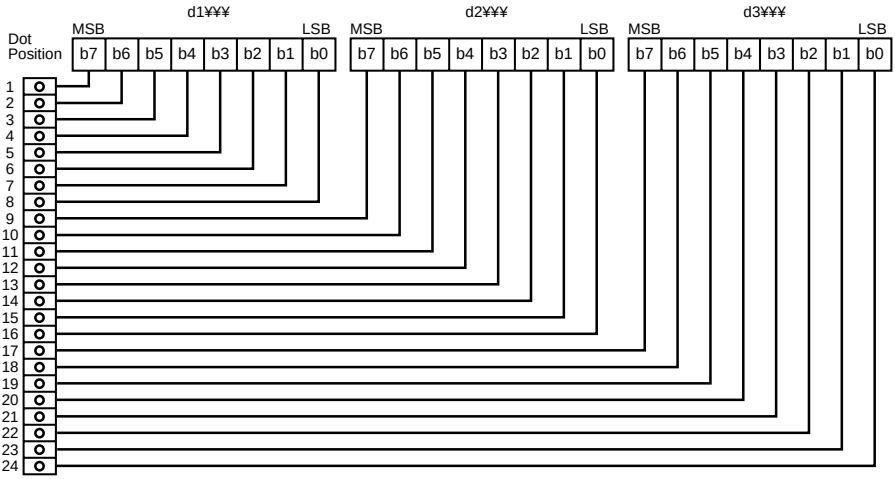
FUNCTION Print fine density graphics

CODE <ESC> “X” *n1* *n2* *d1...dk* [k = (*n1*+*n2*×256)×3]

HEX 1B 5 *n1* *n2* *d1...dk* [k = (*n1*+*n2*×256)×3]

REMARKS Prints a bit image of the input data using horizontal and vertical resolutions of 8 dots/mm.
Data extending past the right margin is ignored.
The relationship between the input data and the actual printing is shown below.
<Print area>

104mm	(TSP800)	:1≦ *n1* + *n2* × 256 ≦ 832
72mm	(TSP600/700)	:1≦ *n1* + *n2* × 256 ≦ 576
52.5mm	(TSP700)	:1≦ *n1* + *n2* × 256 ≦ 420
80mm	(TSP700)	:1≦ *n1* + *n2* × 256 ≦ 640
50.8mm	(TSP600/700)	:1≦ *n1* + *n2* × 256 ≦ 406



FUNCTION Define logo data

CODE <ESC> <FS> "q" *n [x11 x12 y11 y12 d [k1]] 1... [xn1 xn2 yn1 yn2 d[kn]]n*

HEX 1B 1C 71 *n [x11 x12 y11 y12 d [k1]] 1... [xn1 xn2 yn1 yn2 d[kn]]n*

REMARKS Define the logo data specified by *n*.

n $1 \leqq n \leqq 255$

The number of logo images to define is specified.

[xn1 xn2 yn1 yn2 d[kn]]n

Parameter and data are specified according to the number specified by *n*.

xn1, *xn2* $1 \leqq (xn1 + xn2 \times 256) \leqq 1023$

Horizontal size of the logo image is specified as $(xn1 + xn2 \times 256) \times 8$ dots.

yn1, *yn2* $1 \leqq (yn1 + yn2 \times 256) \leqq 288$

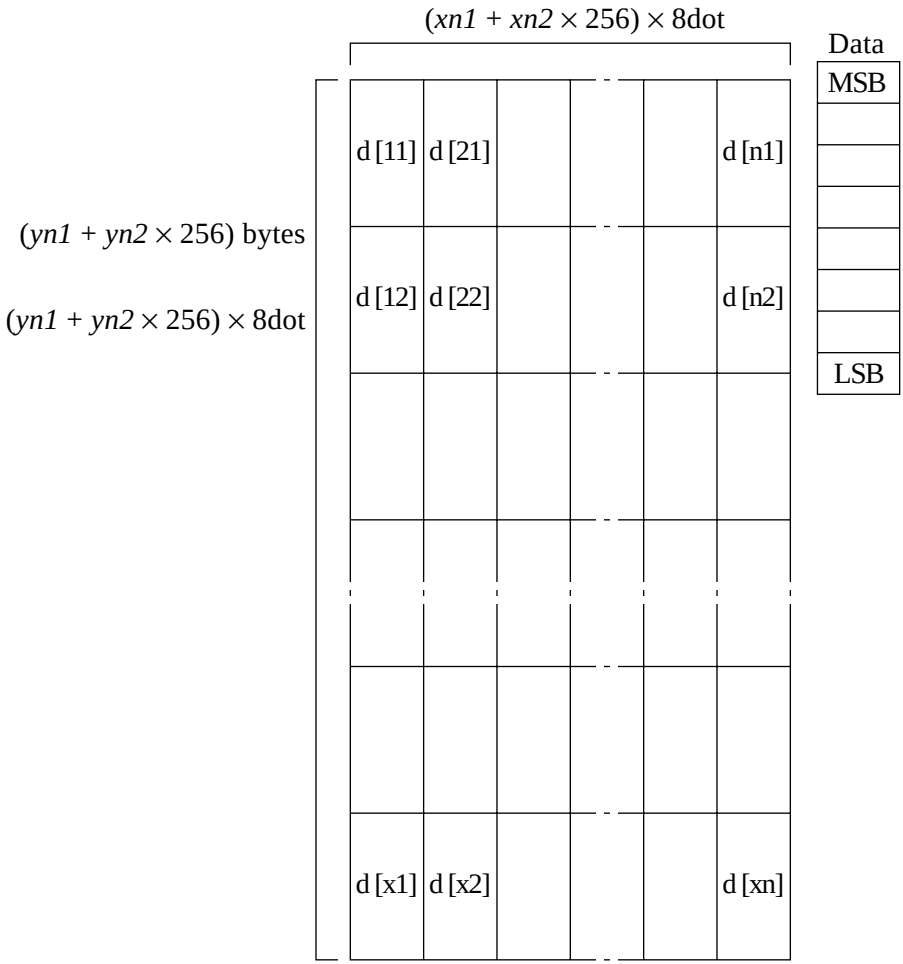
Vertical size of the logo image is specified as $(yn1 + yn2 \times 256) \times 8$ dots.

d[kn] $kn = (xn1 + xn2 \times 256) \times (yn1 + yn2 \times 256) \times 8$

Logo data is specified.

Note) This command is specified at the beginning of the line.
This command cancels all logo images that have already been defined by this command. The printer cannot redefine only one of several data definitions previously defined. Is this case, all data needs to be sent again.
Total defined data area is 480K bytes for TSP800 (256K bytes for TSP600 / 700).
If there is not enough empty area that was specified with the parameter, or if any mistake in the parameter is turned out, the processing of this command is terminated. (However, the logo images whose definition had been completed before termination are effective.)
When the processing of this command is completed, or terminated, the printer will be initialized.
Form the beginning of processing of this command till the finish of hardware reset, error process, mechanical operations and status processes cannot be performed.

xn = *xn1* + *xn2* × 256, *yn* = *yn1* + *yn2* × 256



FUNCTION Print logo image

CODE <ESC> <FS> “p” *n* *m*

HEX 1B 1C 70 *n* *m*

REMARKS Prints the logo image *n* using the mode specified by *m*.

n $1 \leqq n \leqq 255$

Logo image number defined by the command <ESC> <FS> “q” is specified.

m $0 \leqq m \leqq 3$ or “0” $\leqq m \leqq$ “3”

m = 0 or “0” Normal

m = 1 or “1” Double-width

m = 2 or “2” Double-height

m = 3 or “3” Quadruple (double-width, double height)

Note) If there is unprinted data in the line buffer, this command will be executed after the data in the line buffer is printed out.

This command is not affected by print modes (emphasized, underline, character size, etc.) except inverted printing.
Print start position in the horizontal direction is the left margin position. Horizontal print area follows the left and right margin settings.
If the horizontal size of the logo image exceeds the horizontal print area, the exceeded data is not printed.

Commands to Print Download Characters

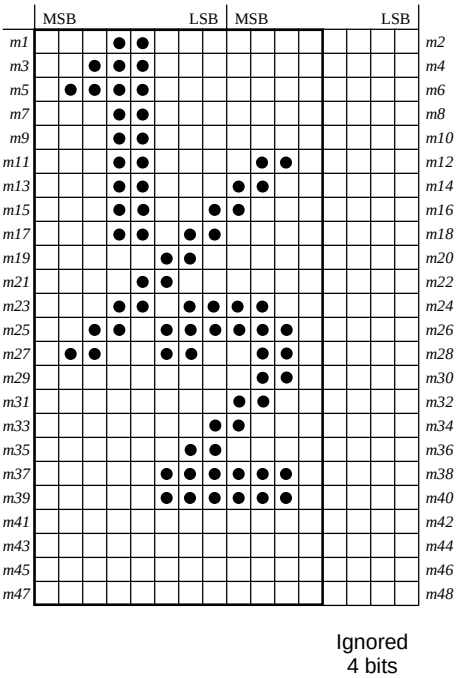
FUNCTION Define download character

CODE <ESC> "&" <1> <1> *n* *m1* *m2* ... *m48*

HEX 1B 26 01 01 *n* *m1* *m2* ... *m48*

REMARKS Defines one new character and stores it in RAM for later use.
n is the character code of the character defined and must be between 32 and 127.
The character matrix is 12 dots wide and 24 dots high.
Relationship between the character pattern and the character data is shown below.

EXAMPLE



Data	Binary	Hexa-decimal	Data	Binary	Hexa-decimal
m1	00011000	18	*m2*	00000000	00
m3	00111000	38	*m4*	00000000	00
m5	01111000	78	*m6*	00000000	00
m7	00011000	18	*m8*	00000000	00
m9	00011000	18	*m10*	00000000	00
m11	00011000	18	*m12*	01100000	60
m13	00011000	18	*m14*	11000000	C0
m15	00011001	19	*m16*	10000000	80
m17	00011011	1B	*m18*	00000000	00
m19	00000110	06	*m20*	00000000	00
m21	00001100	0C	*m22*	00000000	00
m23	00011011	1B	*m24*	11000000	C0
m25	00110111	37	*m26*	11100000	E0
m27	01100110	66	*m28*	01100000	60
m29	00000000	00	*m30*	01100000	60
m31	00000000	00	*m32*	11000000	C0
m33	00000001	01	*m34*	10000000	80
m35	00000011	03	*m36*	00000000	00
m37	00000111	07	*m38*	11100000	E0
m39	00000111	07	*m40*	11100000	E0
m41	00000000	00	*m42*	00000000	00
m43	00000000	00	*m44*	00000000	00
m45	00000000	00	*m46*	00000000	00
m47	00000000	00	*m48*	00000000	00

FUNCTION Delete a download character

CODE <ESC> “&” <1> <0> *n*

HEX 1B 26 01 00 *n*

REMARKS Deletes the download character which was assigned the value *n*.

FUNCTION Enable download character set

CODE <ESC> “%” “1” or <ESC> “%” <1>

HEX 1B 25 31 or 1B 25 01

REMARKS Enables the download character set.

FUNCTION Disable download character set

CODE <ESC> “%” “0” or <ESC> “%” <0>

HEX 1B 25 30 or 1B 25 00

REMARKS Disables the selected download character set and returns to the built-in ROM character set.

Commands to Control Peripheral Devices

FUNCTION Define drive pulse width for peripheral device

CODE <ESC><BEL> *n1* *n2*

HEX 1B 07 *n1* *n2*

REMARKS Defines the drive pulse width for peripheral devices requiring other than standard 200 ms pulse time and delay time.
n1 indicates the energizing time and *n2* indicates the delay time, using 10ms units.
The values of *n1*, *n2* are 1 to 127.

FUNCTION Control peripheral device #1

CODE <BEL>

HEX 07

REMARKS Executes drive pulse for peripheral device #1.

FUNCTION Control peripheral device #1

CODE <FS>

HEX 1C

REMARKS Executes drive pulse for peripheral device #1.

FUNCTION Control peripheral device #2

CODE <EM>

HEX 19

REMARKS Drives peripheral device #2. The drive pulse width and delay time are fixed at 200 ms.

FUNCTION Control peripheral device #2

CODE <SUB>

HEX 1A

REMARKS Drives peripheral device #2. The drive pulse width and delay time are fixed at 200 ms.

Commands to Control Auto Cutter

FUNCTION Cut command to the auto cutter

CODE <ESC> "d" *n*

HEX 1B 64 *n*

REMARKS *n* = "0" or <0> : **TSP700/800**
Cuts the paper fully immediately.

n = "1" or <1> : **TSP600/700/800**
Cuts the paper leaving one point uncut immediately.

n = "2" or <2> : **TSP700/800**
Cuts the paper fully after feeding the paper to the cutting position.
When print start position detect is ON, feeds the paper to the next print start position first, feeds the paper to the cutting position, then cuts the paper fully.

n = "3" or <3> : **TSP600/700/800**
Cuts the paper fully after feeding the paper to the cutting position.
When print start position detect is ON, feeds the paper to the next print start position first, feeds the paper to the cutting position, then cuts the paper leaving one point uncut.

FUNCTION Feed to the tear bar position (TSP600 only)

CODE <ESC> "d" "t"

HEX 1B 64 *74*

REMARKS Feeds the paper to the tear bar position.

Other Commands

FUNCTION Cancel last line & Initialize printer

CODE <CAN>

HEX 18

REMARKS Clears the line buffer, and initializes the commands set already. Does not affect the external equipment drive conditions set by the code <ESC> <BEL> *n1 n2*. (This is the same during a mechanical error.)

FUNCTION Set memory switch

CODE <ESC> <GS>"# m N n1 n2 n3 n4" <LF> <NUL>

HEX 1B 1D 23 m N 2C n1 n2 n3 n4 0A 00

REMARKS Set the memory switch. In order to enable changed memory switch setting, turn the printer OFF and ON again or send printer reset command (<ESC> "?") to the printer. Changed memory switch settings are stored in EEPROM and these setting will be stored as long as the time when they are changed again.

N : Memory switch number (1 or 4)

n1n2n3n4 : Mode settings (For details see below)

1) Use N=1 to set printer conditions. Parameters are follows.

n1 : Always "0"

n2 : Start-position detect

n3 : Zero style

n4 : International character set

(Default)

Parammeter	Setting	0	1
n1	Always "0"	–	–
n2	Start-position delect (*1)	OFF	ON
n3	Zero style	Normal zero	Slashed zero
n4	International character set		See below

n4	Country
0	USA
1	France
2	Germany

n4	Country
3	UK
4	Denmark #1
5	Sweden

n4	Country
6	Itary
7	Spain #1
8	Japan

n4	Country
9	Norway
A	Denmark #2
B	Spain #2

n4	Country
C	Latin America
D	Korea
E	Ireland
F	Legal

(*1) TSP700/800 only

2) Use N=3 for folloing settings

n1 : Character table
n2 : Character table
n3 : Print column
n4 : Line feed, CR code

	Setting	0	1	2	3
n1 n2	Character table	See the table 1 (Nest page)			
n3	Print colum	69 (TSP800) 33/35/48/53 (TSP700) 33/48 (TSP600)	55 (TSP800) 27/28/38/42 (TSP700) 27/38 (TSP600)	–	–
n4	Line feed (mm)	4	3	4	3
	CR code	Invalid	Invalid	Valid	Valid

Note: In order to enable the changed memory switch setting, turn the printer OFF and ON again or send the printer reset command (<ESC>"?") to the printer.

3) Use N=4 for folloing settings

a) TSP700

	Setting	0	1	2	3
n1	Always "0"	–			
n2	Always "0"	–			
n3	Print colum	See below (ESC/POS mode only)			
n4	Print area	See below			

n3	Print colum	Print area	Left margin	Font-A	Font-B
0	EPSON compatible	72 mm (576dots)	32 dots	42 colums	56 colums
		52.5 mm (420dots)	24 dots	31 colums	41 colums
		80 mm (640dots)	40 dots	47 colums	63 colums
		50.8 mm (406dots)	24 dots	30 colums	40 colums
1	Max. colum	72 mm (576dots)	0 dot	48 colums	64 colums
		52.5 mm (420dots)	0 dot	35 colums	46 colums
		80 mm (640dots)	0 dot	53 colums	71 colums
		50.8 mm (406dots)	0 dot	33 colums	45 colums

n4	Print area	Roll paper width
0	72 mm (576 dots)	80 mm
1	52.5 mm (420 dots)	58 mm
2	80mm (640 dots)	82.5 mm
3	50.8 mm (406 dots)	58 mm

b) TSP600

	Setting	0	1	2	3
n1	Always “0”	–			
n2	Always “0”	–			
n3	Print colum	See bolow (ESC/POS mode only)			
n4	Print area	See bolow			

n3	Print colum	Print area	Left margin	Font-A	Font-B
0	EPSON compatible	72 mm (576dots)	32 dots	42 colums	56 colums
		-	-	-	-
		-	-	-	-
		50.8 mm (406dots)	24 dots	30 colums	40 colums
1	Max. colum	72 mm (576dots)	0 dot	48 colums	64 colums
		-	-	-	-
		-	-	-	-
		50.8 mm (406dots)	0 dot	33 colums	45 colums

n4	Print area	Roll paper width
0	72 mm (576 dots)	80 mm
1	-	-
2	-	-
3	50.8 mm (406 dots)	58 mm

Table 1

MSW3-E	MSW3-D	MSW3-C	MSW3-B	MSW3-A	MSW3-9	MSW3-8	Character Table
0	0	0	0	0	0	0	Normal*
0	0	0	0	0	0	1	CodePage 437 (USA, Std. Europe)
0	0	0	0	0	1	0	Katakana
0	0	0	0	0	1	1	CodePage 437 (USA, Std. Europe)
0	0	0	0	1	0	0	Codepage 858 (Multilingual)
0	0	0	0	1	0	1	Codepage 852 (Latin-2)
0	0	0	0	1	1	0	Codepage 860 (Portuguese)
0	0	0	0	1	1	1	Codepage 861 (Icelandic)
0	0	0	1	0	0	0	Codepage 863 (Canadian French)
0	0	0	1	0	0	1	Codepage 865 (Nordic)
0	0	0	1	0	1	0	Codepage 866 (Cyrillic Russian)
0	0	0	1	0	1	1	Codepage 855 (Cyrillic Bulgarian)
0	0	0	1	1	0	0	Codepage 857 (Turkish)
0	0	0	1	1	0	1	Codepage 862 (Hebrew)
0	0	0	1	1	1	0	Codepage 864 (Arabic)
0	0	0	1	1	1	1	Codepage 737 (Greek)
0	0	1	0	0	0	0	Codepage 851 (Greek)
0	0	1	0	0	0	1	Codepage 869 (Greek)
0	0	1	0	0	1	0	Codepage 928 (Greek)
0	0	1	0	0	1	1	Codepage 772 (Lithuanian)
0	0	1	0	1	0	0	Codepage 774 (Lithuanian)
0	0	1	0	1	0	1	Codepage 874 (Thai)
0	1	0	0	0	0	0	Codepage 1252 (Windows Latin-1)
0	1	0	0	0	0	1	Codepage 1250 (Windows Latin-2)
0	1	0	0	0	1	0	Codepage 1251 (Windows Cyrillic)
1	0	0	0	0	0	0	Codepage 3840 (IBM-Russian)
1	0	0	0	0	0	1	Codepage 3841 (Gost)
1	0	0	0	0	1	0	Codepage 3843 (Polish)
1	0	0	0	0	1	1	Codepage 3844 (CS2)
1	0	0	0	1	0	0	Codepage 3845 (Hungarian)
1	0	0	0	1	0	1	Codepage 3846 (Turkish)
1	0	0	0	1	1	0	Codepage 3847 (Brazil-ABNT)
1	0	0	0	1	1	1	Codepage 3848 (Brazil-ABICOMP)
1	0	0	1	0	0	0	Codepage 1001 (Arabic)
1	0	0	1	0	0	1	Codepage 2001 (Lithuanian-KBL)
1	0	0	1	0	1	0	Codepage 3001 (Estonian-1)
1	0	0	1	0	1	1	Codepage 3002 (Estonian-2)
1	0	0	1	1	0	0	Codepage 3011 (Latvian-1)
1	0	0	1	1	0	1	Codepage 3012 (Latvian-2)
1	0	0	1	1	1	0	Codepage 3021 (Bulgarian)
1	0	0	1	1	1	1	Codepage 3041 (Maltese)
1	1	1	1	1	1	1	User setting (Blank code page)

FUNCTION Initialize printer

CODE <ESC> "@"

HEX 1B 40

REMARKS Reinitializes the printer. Clears the print buffer and returns settings to their power-up values.
Does not clear the input buffer, downloaded characters, or conditions for peripheral devices.

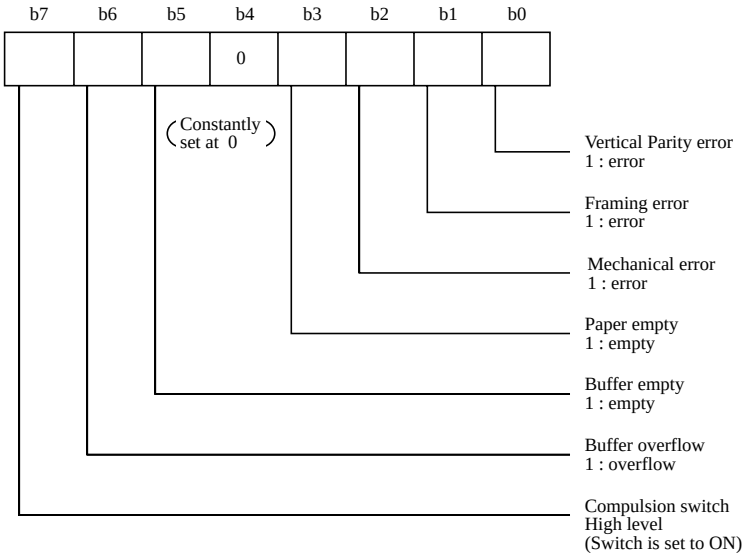
FUNCTION Request status

CODE <ENQ>

HEX 05

REMARKS Causes the printer to transmit a status byte.

Status byte



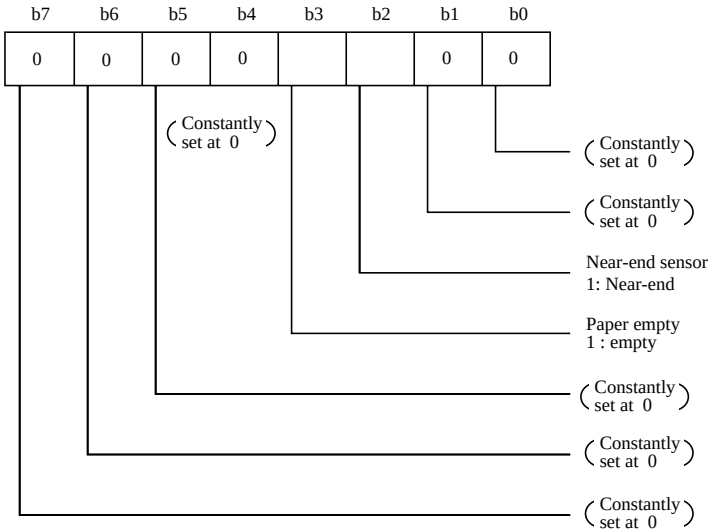
FUNCTION Request Status

CODE <EOT>

HEX 04

REMARKS Causes the printer to transmit a status byte.

Status byte



FUNCTION Request status

CODE <ESC> <ACK> <SOH>

HEX 1B 06 01

REMARKS Causes the printer to transmit a status byte.

Header #1 (1st byte)

Bit	Contents	0	1
0	Always“1”	–	
1	Number of printer status byte		
2			
3			
4	Always“0”		–
5	Number of printer status byte		
6	Always“0”		–
7	Always“0”		–

Number of transmit byte n (7 ≦ n ≦ 15)	Header #1
7	00001111B (0F Hex)
8	00100001B (21 Hex)
9	00100011B (23 Hex)
10	00100101B (25 Hex)
11	00100111B (27 Hex)
12	00101001B (29 Hex)
13	00101011B (2B Hex)
14	00101101B (2D Hex)
15	00101111B (2F Hex)

Header #2 (2nd byte)

Bit	Contents	0	1
0	Always“0”	–	
1	Version No. of the Automatic status		
2			
3			
4	Always“0”		–
5	Version No. of the Automatic status		
6			
7	Always“0”		–

Version No. n	Header #2
1	00000010B (02 Hex)
2	00000100B (04 Hex)
3	00000110B (06 Hex)
4	00001000B (08 Hex)
5	00001010B (0A Hex)
6	00001100B (0C Hex)
7	00001110B (0E Hex)
8	00100000B (20 Hex)
9	00100010B (22 Hex)
10	00100100B (24 Hex)
・ ・ ・	・ ・ ・
16	01000000B (40 Hex)
・ ・ ・	・ ・ ・
30	01101100B (6C Hex)
31	01101110B (6E Hex)

Printer status #1 (3rd byte)

Bit	Contents	0	1
0	Always“0”		–
1	<ETB> command	Unexecuted	Executed
2	Compulsion switch	Open	Close
3	ON Line / OFF Line	ON Line	OFF Line
4	Always“0”		–
5	Cover open	Close	Open
6	Invalid		
7	Always“0”		–

Printer status #2 (4th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Mechanical error	No error	Error
3	Auto cutter error	No error	Error
4	Always“0”		–
5	Un recoverable error	No error	Error
6	Print stop due to high temperature print head	Printing	Stop
7	Always“0”		–

Printer status #3 (5th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Invalid		
3	Invalid		
4	Always“0”		–
5	Invalid		
6	Buffer overflow	No error	Error
7	Always“0”		–

Printer status #4 (6th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Near-end	Not near-end	Near-end
3	Paper empty	Not empty	Empty
4	Always“0”		–
5	Invalid		
6	Invalid		
7	Always“0”		–

Printer status #5 (7th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Invalid		
3	Invalid		
4	Always“0”		–
5	Invalid		
6	Invalid		
7	Always“0”		–

FUNCTION Set status transmission condition

CODE <ESC> <RS> “a” *n*

HEX 1B 1E 61 *n*

REMARKS Status transmission condition is set according to the value of *n*.
n = 0 : ASB is invalid
n = 1 : ASB is valid

FUNCTION Reset the printer hardware

CODE <ESC> “?” <LF><NUL>

HEX 1B 3F 0A 00

REMARKS Resets the printer hardware.

3. STAR PAGE MODE (TSP800 ONLY)

3-1. Command Summary

The printer has the following control commands. Each control code starts with <ESC> code and ends with <LF> <NUL> codes, except for the Request status command <ENQ> and the Call Download Character command <ESC> "G".

Format Definition

Control codes	Hexadecimal codes	Function	Pages
<ESC> "C"<LF> <NUL>	1B 43 0A 00	Clear format	48
<ESC> "D *n1n2n3n4*" <LF> <NUL>	1B 44 *n1n2n3n4* 0A 00	Define print area	48
<ESC> "L *n1n2 ; x1x2x3x4 , y1y2y3y4, x5x6x7x8 , y5y6y7y8, d, w*" <LF> <NUL>	1B 4C *n1n2 3B x1x2x3x4* 2C *y1y2y3y4* 2C *x5x6x7x8* 2C *y5y6y7y8* 2C *d* 2C *w* 0A 00	Define ruled line format	49
<ESC> "E *n1n2*" <LF> <NUL>	1B 45 *n1n2* 0A 00	Cancel ruled line format	49
<ESC> "PC *n1n2 ; x1x2x3x4 , y1y2y3y4, w, h, c, r1r2, d1d2*" <LF> <NUL>	1B 50 43 *n1n2 3B x1x2x3x4* 2C *y1y2y3y4* 2C *w* 2C *h* 2C *c* 2C *r1r2* 2C *d1d2* 0A 00	Define character string format	50
<ESC> "PB *n1n2 ; x1x2x3x4 , y1y2y3y4, w, b, m, h1h2h3h4*" <LF> <NUL>	1B 50 42 *n1n2 3B x1x2x3x4* 2C *y1y2y3y4* 2C *w* 2C *b* 2C *m* 2C *h1h2h3h4* 0A 00	Define bar code format	52
<ESC> "Y *d1d2*" <LF> <NUL>	1B 59 *d1d2* 0A 00	Define character pitch	53

Print Data Settings

Control codes	Hexadecimal codes	Function	Pages
<ESC> "RC *n1n2 ; a1.....an*" <LF> <NUL>	1B 52 43 n1n2 3B a1a2.…an 0A 00	Set character string data	54
<ESC> "RB n1n2 ; *a1.....an*" <LF> <NUL>	1B 52 42 *n1n2 3B a1a2.…an* 0A 00	Set bar code data	55
<ESC> "Q *n x1x2x3x4, y1y2y3y4, h1h2h3h4, w1w2w3, n11n12n13 n.…n1k* <LF>*.…nm1nm2 .…nmk*" <LF> <NUL>	1B 51 *n x1x2x3x4* 2C *y1y2y3y4* 2C *h1h2h3h4* 2C *w1w2w3* 2C *n11n12n13 n.…n1k* <LF>*.…nm1nm2 .…nmk*" 0A 00	Store dot graphic data into image memory	56
<ESC> "H *n x1x2x3x4, y1y2y3y4,* (BMP file data) ," <LF> <NUL>	1B 48 *n x1x2x3x4* 2C *y1y2y3y4* 2C (BMP file data) 2C 0A 00	Copy BMP file to printer	57
<ESC> "G *n1n2, n3n4*" <ESC> "0"	1B 47 *n1n2* 2C *n3n4* 1B 30	Call download character	58
<ESC> "K *n x1x2x3x4, y1y2y3y4, d1d2d3*" <LF> <NUL>	1B 4B *n x1x2x3x4* 2C *y1y2y3y4* 2C *d1d2d3* 0A 00	Store logo data into image memory	58
<ESC> "X" <LF> <NUL>	1B 58 0A 00	Clear image data	58

Other commands

Control codes	Hexadecimal codes	Function	Pages
<ESC> "I" <LF> <NUL>	1B 49 0A 00	Print Label	59
<ESC> "W *s1s2s3s4*, *h1h2h3h4*" <LF> <NUL>	1B 57 *s1s2s3s4* 2C *h1h2h3h4* 0A 00	Print Label	59
<ESC> "B *d n1n2*" <LF> <NUL>	1B 42 *d n1n2* 0A 00	Enable cutter	60
<ESC> "# N, *n1n2n3n4*" <LF> <NUL>	1B 23 N 2C *n1n2n3n4* 0A 00	Set Memory Switch	60
<ESC> "?" <LF> <NUL>	1B 3F 0A 00	Reset printer	61
<ENQ>	05	Request status	62
<EOT>	04	Request status	63
<ESC> <ACK> <SOH>	1B 06 01	Request status	63
<ESC> <RS> "a" *n*	1B 1E 61 *n*	Set status transmission condition	67
<ESC> "N *n1n2*" <LF> <NUL>	1B 4E *n1n2* 0A 00	Select international character set	67
<ESC> "F *n1n2 ; d1.....d48*" <LF> <NUL>	1B 46 *n1n2 3B d1….d48* 0A 00	Register download character	68
<ESC> "Z *n*" <LF> <NUL>	1B 5A *n* 0A 00	Select "zero"style	68

3-2. Command Specification

Format Definition

FUNCTION Clear format

CODE <ESC> "C" <LF><NUL>

HEX 1B 43 0A 00

REMARKS When the printer receives this command, all defined format and image data are cleared.
The format defined by the following commands will be cleared.
<ESC> "D"
<ESC> "E" <ESC> "L" <ESC> "PC" <ESC> "PB"
<ESC> "Y" <ESC> "RC" <ESC> "RB" <ESC> "Q"
<ESC> "H" <ESC> "K" <ESC> "B"

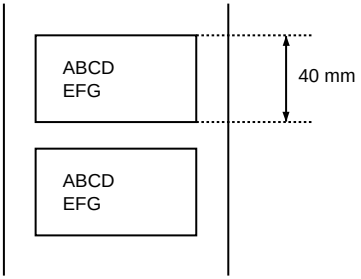
FUNCTION Define print area

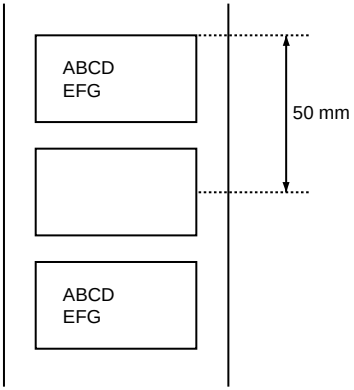
CODE <ESC> "D *n1n2n3n4*" <LF> <NUL>

HEX 1B 44 *n1n2n3n4* 0A 00

REMARKS This command defines the print area(page length) according to the value of n1n2n3n4 in 1/10 mm unit.
n1n2n3n4 :Print area 0001 to 2000 (0.1 mm to 200 mm)

Note : When a value greater than the size of the label is set, two or more labels are assumed to be one label.
For example, when 50 mm is set for a label whose pitch is 40 mm, one print pattern is printed using two labels.
To avoid such a case, approx. 5 mm of each top and bottom margins should be considered.





FUNCTION Define ruled line format

CODE <ESC> "L *n1n2* ; *x1x2x3x4* , *y1y2y3y4* , *x5x6x7x8* , *y5y6y7y8* , *d* , *w*" <LF> <NUL>

HEX 1B 4C *n1n2* 3B *x1x2x3x4* 2C *y1y2y3y4* 2C *x5x6x7x8* 2C *y5y6y7y8*2C *d* 2C *w* 0A 00

REMARKS This command defines ruled line format.

n1n2 : Line number(00 to 63)

x1x2x3x4 : Position of the starting point in the X direction (0000 to 1040 × 0.1 mm)

y1y2y3y4 : Position of the starting point in the Y direction (0000 to 2000 × 0.1 mm)

x5x6x7x8 : Position of the ending point in the X direction (0000 to 1040 × 0.1 mm)

y5y6y7y8 : Position of the ending point in the Y direction (0000 to 2000 × 0.1 mm)

These four parameters work in 1/10 mm unit, and should be given with four digit numbers.

d : Line direction *d*=0 : Horizontal line
d=1 : Vertical line
When *d*=0, then *y1y2y3y4* = *y5y6y7y8*. When *d*=1, then *x1x2x3x4* = *x5x6x7x8*.

w : Line width 1 to 9 dots

Note:
a) This command is used to define lines for label framing.
b) Up to 64 lines can be defined.
c) Lines must be vertical or horizontal (no diagonal line).
d) The width of one dot is about 0.125 mm, and so four dots make 0.5 mm width.

FUNCTION Cancel ruled line format

CODE <ESC> "E *n1n2*" <LF><NUL>

HEX 1B 45 *n1n2* 0A 00

REMARKS This command cancels the line previously defined by<ESC> "L *n1n2*".

n1n2 : Line number (00 to 63)

FUNCTION Define character string format

CODE <ESC> "P C *n1n2* ; *x1x2x3x4* , *y1y2y3y4* , *w* , *h* , *c* , *r1r2* , *d1d2*" <LF> <NUL>

HEX 1B 50 43 *n1n2* 3B *x1x2x3x4* 2C *y1y2y3y4* 2C *w* 2C *h* 2C *c* 2C *r1r2* 2C *d1d2* 0A 00

REMARKS This command defines start position and type of character string.

n1n2 : Character string number(00 to 99)

x1x2x3x4 : Print start position in the X direction (0000 to 1040 × 0.1 mm)

y1y2y3y4 : Print start position in the Y direction (0000 to 2000 × 0.1 mm)

w : Character width magnification (1 to 6)

h : Character height magnification (1 to 6)

c : Character type (1to 4)

1: Small size character (8×16 dots)
2: Standard size character (16×24 dots)
3: Reserved
4: Boldface character (24×32 dots)

r1 : Character rotation direction (0 to 3)

0	1	2	3
0 degree	90 degrees	180 degrees	270 degrees

r2 : Character string rotation direction (0 to 3)

0	1	2	3
0 degree	90 degrees	180 degrees	270 degrees

d1d2 : Space between characters (00 to 63 dots)

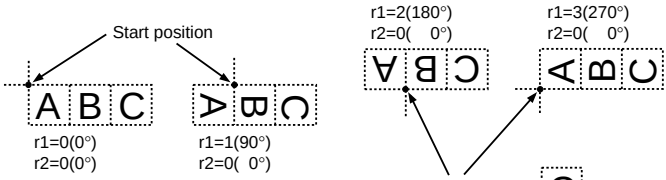
Note: a) "d1d2" can be left out. When "*d1d2*" is left out, a space between characters is defined by <ESC> "Y". Default value is "00".

b) Up to 100 character strings can be defined.

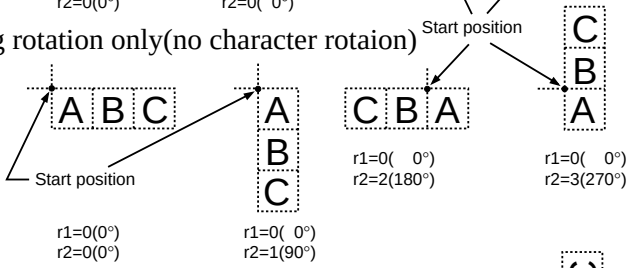
c) If ";" or "," is missing, printer goes into an error condition.

Character rotation and character string rotation

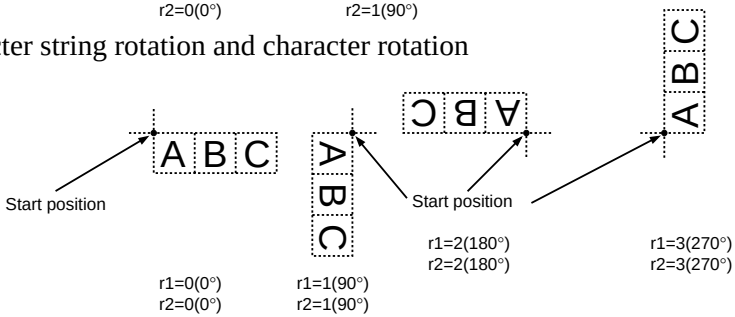
1) Charcter rotation only(no character string rotaion)



2) Charcter string rotation only(no character rotaion)



3) Charcter string rotation and character rotation



PAGE MODE

FUNCTION Define bar code format

CODE

<ESC> “P B *n1n2* ; *x1x2x3x4* ,
y1y2y3y4 , *w* , *b* , *m* ,
h1h2h3h4”<LF><NUL>

HEX

1B 50 42 *n1n2* 3B *x1x2x3x4* 2C
y1y2y3y4 2C *w* 2C *b* 2C *m* 2C
h1h2h3h4 0A 00

REMARKS This command defines start position and type of bar code string.

n1n2 : Bar code string number (00 to 31)

x1x2x3x4 : Print start position in the X direction (0000 to 1040 × 0.1 mm)

y1y2y3y4 : Print start position in the Y direction (0000 to 2000 × 0.1 mm)

w : Mode (See Appendix for details)

b : Bar code type (1 to 9)

1: CODE 39
2: INTERLEAVED 2 OF 5 (ITF)
3: CODE 93
4: UPC-A
5: JAN/EAN-8
6: JAN/EAN-13
7: CODE 128
8: NW-7
9: UPC-E

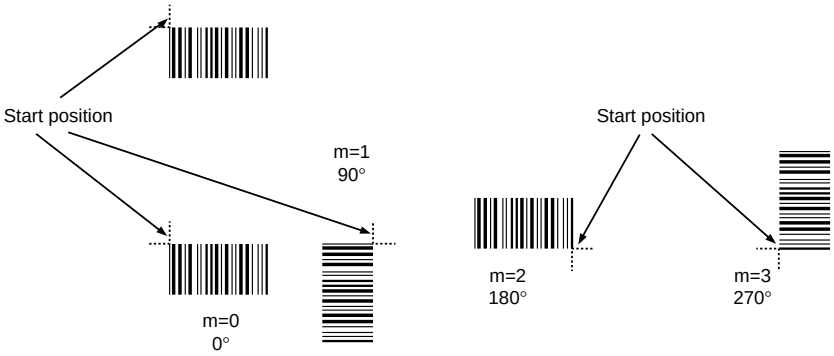
m : Bar code rotation direction (0 to 3) (clockwise)

0	1	2	3
0 degree	90 degrees	180 degrees	270 degrees

h1h2h3h4 : Bar code height (0000 to 1999 × 0.1 mm)

Note:
a) When a bar code is rotated, its dimensions may not conform to ANSI specifications. Make sure that the printed bar code is compatible with the scanner or scanners to be utilized.
b) Up to 32 bar codes can be defined.
c) If “;” or “,” is missing, printer goes into an error condition.

Bar code rotation



FUNCTION Define character pitch

CODE <ESC> "Y *d1d2*" <LF><NUL>

HEX 1B 59 *d1d2* 0A 00

REMARKS This command defines dot space between characters.
d1d2 : Indicates dot space (00 to 63)

Note: a) The command is used to define dot space between characters.
b) When changing the inter character space, a new value must be placed in front of the <ESC> "PC" command.
c) Default value is 00.
d) Pitch for each kind of character is as shown below.
e) Up to 64 dot space can be defined.

(default) (unit: mm)

d1d2	00 dot	01 dot	02 dots	03 dots	04 dots	05 dots	06 dots	07 dots
Small size character	1	1.125	1.25	1.375	1.5	1.625	1.75	1.875
Standard size character	2	2.125	2.25	2.375	2.5	2.625	2.75	2.875
Boldface character	3	3.125	3.25	3.375	3.5	3.625	3.75	3.875

Increase 0.125 mm per 1 dot. (d1d2=10 , then 1(or 2 or 3)+0.125 × 10 mm)

Print Data Settings

FUNCTION Set character string data

CODE <ESC> "R C *n1n2* ;*a1a2.…an*" <LF><NUL>

HEX 1B 52 43 *n1n2* 3B*a1a2.…an* 0A 00

REMARKS This command sets character strings defined by the <ESC> "PC".

n1n2 : Two digit reference number of character string whose print position and type are previously defined with <ESC> "PC".

a1a2..…an : Character string data (up to 100 characters)

Note:
a) The same reference numbers used by the format definition command <ESC> "PC" is used.
b) To print data, the Print Label command (<ESC> "I") must be sent.
c) This command, along with the Print Label command (<ESC> "I"), allows reprinting of labels where only the character string data changes.
d) If ";" is missing, printer goes into an error condition.

FUNCTION Set bar code data

CODE	<ESC>	"R	B	*n1n2*	;	*a1a2.…an*"	<LF>	<NUL>
HEX	1B	52	42	*n1n2*	3B	*a1a2.…an*	0A	00

REMARKS This command defines the bar code data to be printed.

n1n2 : Two digits reference number of defined bar code whose print position and type are previously defined with <ESC>"PB".

a1a2.…an : Bar code data to be encoded and printed.

Note:
a) Start and stop characters of CODE 39 is automatically inserted.
b) Check word of JAN, EAN, or UPC is automatically calculated and inserted.
c) When data length does not meet the specifications of JAN, EAN, or UPC, data length is ignored.
d) CODE 128 conforms to EAN-128; the start code, check word, and stop code of CODE 128 are automatically inserted.
e) Start, stop and check characters of CODE 93 are automatically inserted.
f) Start and stop characters of Interleaved 2 of 5 are automatically inserted.
g) When the number of digits of lnterleaved 2 of 5 is an odd number, "0" is automatically inserted as the highest digit.
h) If ";" is missing, printer goes into an error condition.

FUNCTION Store dot graphic data into image memory

CODE <ESC> "Q *n x1x2x3x4* , *y1y2y3y4* , *h1h2h3h4* , *w1w2w3* ,*n11n12n13n.…n1k* <LF>*.…nm1nm2.…nmk*" <LF> <NUL>

HEX 1B 51 *n x1x2x3x4* 2C *y1y2y3y4* 2C *h1h2h3h4* 2C *w1w2w3* 2C*n11n12n13n.…n1k* <LF>*.…nm1nm2.…nmk*" 0A 00

REMARKS This command stores graphic data into image memory.

n : ";" : OR mode
":" : Overwrite mode

x1x2x3x4 : Print start position in the X direction. (0000 to 1040 × 0.1 mm)

y1y2y3y4 : Print start position in the Y direction. (0000 to 2000 × 0.1 mm)

h1h2h3h4 : Defines the length (Y direction) of the graphic area. (0001 to 1600 dots)

w1w2w3 : Defines the width (X direction) of the graphic area. (001 to 104 dots)

n11.…nmk : n11 represents data in the 1st line. Each line ends with <LF>.
Data (X direction) appears in the same way as bit image data. n21 represents data in the 2nd line.

Note:
a) This command can be used any number of times.
b) Size of graphic data is set in 1 mm units (byte units (8 bits/bytes)) in the X direction and 0.125 mm units (dot units) in the Y direction.
c) <ESC> "X" cancels data that was set using the command.
d) If ";" or "," is missing, printer goes into an error condition.

FUNCTION Copy BMP file to printer

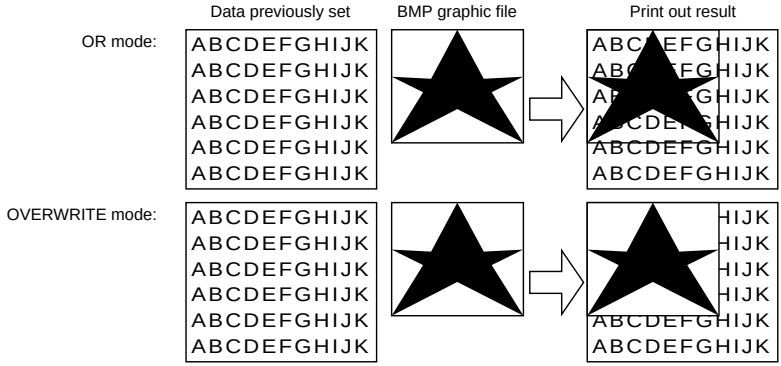
CODE <ESC> "H *n* *x1x2x3x4* , *y1y2y3y4* ,
(BMP file data) ," <LF> <NUL>

HEX 1B 48 *n* *x1x2x3x4* 2C *y1y2y3y4* 2C
(BMP file data) 2C 0A 00

REMARKS This command copies BMP file to the printer(Image buffer). BMP file can be scanned by scanner and edited by a program such as the PAINT BRUSH in the WINDOWS. The printer can accept non-compressed monochrome BMP file only.

BMP file contains white pixel (dots). There are two mode in this command depending on how to handle these white pixels when there are black pixels already set in the area to be printed on.

n : Mode ";" 3B(hex) "OR" mode : White pixels (area) of BMP file do not erase black pixels previously set.
":" 3A(hex) "OVERWRITE" : White pixels (area) of BMP file erase(overwrite) black pixels previously set.



x1x2x3x4 : Print start position in the X direction
y1y2y3y4 : Print start position in the Y direction
BMP file data : Command accepts BMP non-compressed monochrome graphic file as binary file.

Note : Printer will result in an error on the following conditions:
a) Error in command format structure
b) If either start position or image data is located out of print area.
c) If a BMP file does not meet command specification. (Printer can only accept non-compressed, monochrome BMP file)

PAGE MODE

FUNCTION Call download character

CODE <ESC> "G *n1n2* , *n3n4* " <ESC> "0"

HEX 1B 47 *n1n2* 2C *n3n4* 1B 30

REMARKS This command calls download character.

n1n2,*n3n4* : Reference numbers of defined download characters(00 to 31).

Note : Only standard size characters (16 (W) × 24 (H) dots) can be defined as download characters.

FUNCTION Store logo data into image memory

CODE <ESC> "K *n* *x1x2x3x4* , *y1y2y3y4* , *d1d2d3*" <LF> <NUL>

HEX 1B 51 *n* *x1x2x3x4* 2C *y1y2y3y4* 2C *d1d2d3* 0A 00

REMARKS This command stores logo data into image memory.

n : ";" : OR mode

":" : Overwrite mode

x1x2x3x4 : Print start position in the X direction (0000 to 1040 × 0.1mm)

y1y2y3y4 : Print start position in the Y direction (0000 to 2000 × 0.1mm)

d1d2d3 : Logo registration number (001 to 255)

Note : Logo data is registered in Line mode.

FUNCTION Clear image data

CODE <ESC> "X" <LF><NUL>

HEX 1B 58 0A 00

REMARKS When the printer receives this command, the defined image data are cleared.

The following commands will be cleared by<ESC> "X"

<ESC> "RC"<ESC> "RB"<ESC> "Q"<ESC> "H"<ESC> "K"

Other commands

FUNCTION Print Label

CODE <ESC> "I" <LF><NUL>

HEX 1B 49 0A 00

REMARKS This command prints out one label according to the previously defined format and data.
When print start position detect is ON, the paper will be fed to the next print start position after printing.
If unrecoverable error occurs during printing, a series of these operation will be repeated after the printer recovers from the error condition.

FUNCTION Print Label

CODE <ESC> "W *s1s2s3s4* , *h1h2h3h4*" <LF> <NUL>

HEX 1B 57 *s1s2s3s4* 2C *h1h2h3h4* 0A 00

REMARKS This command prints out the data within the defined print area.
Print area defined by <ESC>"D" is ignored.
When print start position detect is ON, the paper will be fed to the next print start position after printing.
If unrecoverable error occurs during printing, a series of these operation will be repeated after the printer recovers from the error condition.

s1s2s3s4 : Print start position in the Y direction (unit: 0.1 mm)
h1h2h3h4: Print length from the print start position (unit: 0.1 mm)

FUNCTION Enable cutter

CODE <ESC> "B *d n1n2*" <LF><NUL>

HEX 1B 42 *d n1n2* 0A 00

REMARKS This command defines cut position and enables cutter. This command does not energize cutter.
Cutter will be operated only when receiving<ESC> "I" command.

d : "+" or "-" indicates the direction of the cut position from the normal position.
"+" indicates a forward feed, and "-" indicates a reverse feed from the normal cut position.

n1n2 : Indicates the value to move in 1/10 mm unit.(00 to 50)

Note: a) If these parameters (d and n1n2) are omitted, then the cut position is set at the default position.
b) Default cut position , or normal position, is at the bottom edge of the print area.
c) d:"@" means that cutting operation is omitted one time. In this case, *n1n2* is not specified.

FUNCTION Set Memory Switch

CODE <ESC> "# N , *n1n2n3n4*"<LF> <NUL>

HEX 1B 23 N 2C *n1n2n3n4* 0A 00

REMARKS Set the memory switch. In order to enable changed memory switch settings, turn the printer OFF and ON again or send printer reset command (<ESC>"?") to the printer. Changed memory switch settings are stored in EEPROM and these setting will be stored as long as the time when they are changed again.

N : Memory switch number (1 only)
n1n2n3n4 : Mode settings (For details see below)
1) Use N=1 to set printer conditions. Parameters are as follows.
n1 : Always "0"
n2 : Start-position detect
n3 : Zero style
n4 : International character set

(Default)

Parameter	Setting	0	1
n1	Always “0”	–	–
n2	Start-position detect	OFF	ON
n3	Zero style	Normal zero	Slashed zero
n4	International character set		See below

n4	Country
0	USA
1	France
2	Germany

n4	Country
3	UK
4	Denmark #1
5	Sweden

n4	Country
6	Itary
7	Spain #1
8	Japan

n4	Country
9	Norway
A	Denmark #2
B	Spain #2

n4	Country
C	Latin America

FUNCTION Reset printer

CODE <ESC> ? <LF><NUL>

HEX 1B 3F 0A 00

REMARKS Resets the printer and prints self-test. This command will also set memory switch conditions without the need to turn the printer power OFF and ON again.

EXAMPLE LPRINT CHR$(&H1B);“?”;CHR$(&H0A);CHR$(&H00);

FUNCTION Request status

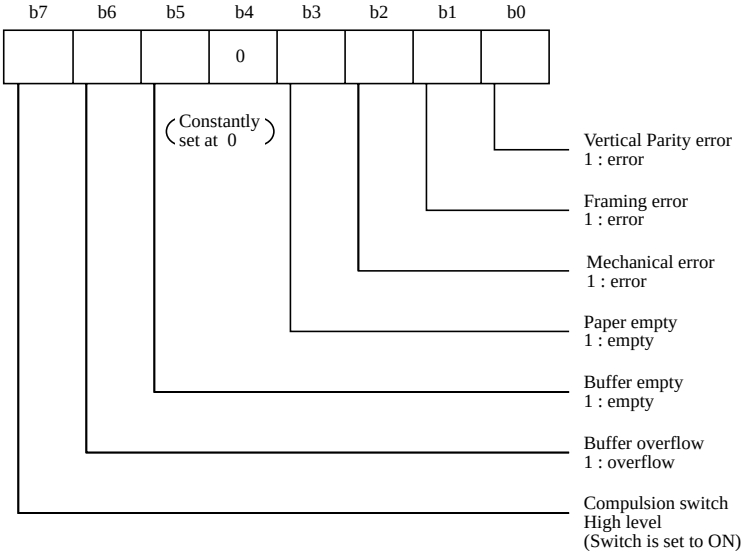
CODE <ENQ>

HEX 05

REMARKS When the printer receives this command, the printer sends back a status byte for the current printer condition immediately to the host.

Note: Printer conditions are reported by the following status bytes:

Status byte



FUNCTION Request status

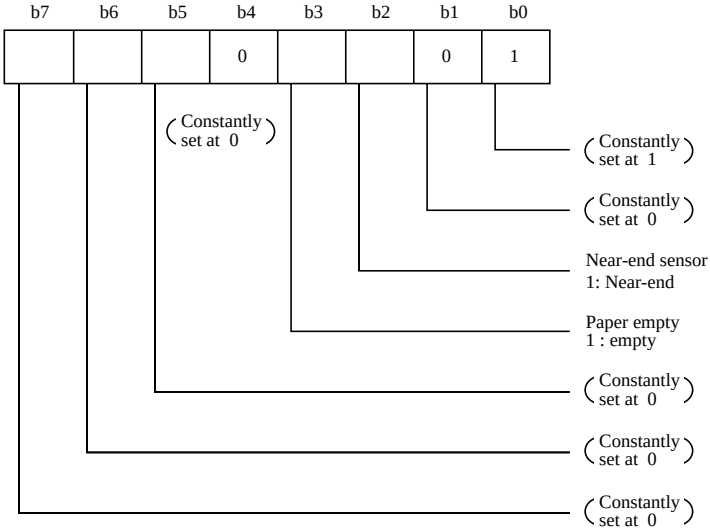
CODE <EOT>

HEX 04

REMARKS When the printer receives this command, the printer sends back a status byte for the current printer condition immediately to the host.

Note: Printer conditions are reported by the following status bytes:

Status byte



FUNCTION Request status

CODE <ESC> <ACK> <SOH>

HEX 1B 06 01

REMARKS When the printer receives this command, the printer sends back a status byte for the current printer condition to the host.

Header #1 (1st byte)

Bit	Contents	0	1
0	Always“1”	–	
1	Number of printer status byte		
2			
3			
4	Always“0”		–
5	Number of printer status byte		
6	Always“0”		–
7	Always“0”		–

Number of transmit byte n (7 ≦ n ≦ 15)	Header #1
7	00001111B (0F Hex)
8	00100001B (21 Hex)
9	00100011B (23 Hex)
10	00100101B (25 Hex)
11	00100111B (27 Hex)
12	00101001B (29 Hex)
13	00101011B (2B Hex)
14	00101101B (2D Hex)
15	00101111B (2F Hex)

Header #2 (2nd byte)

Bit	Contents	0	1
0	Always“0”	–	
1	Version No. of the Automatic status		
2			
3			
4	Always“0”		–
5	Version No. of the Automatic status		
6			
7	Always“0”		–

Version No. n	Header #2
1	00000010B (02 Hex)
2	00000100B (04 Hex)
3	00000110B (06 Hex)
4	00001000B (08 Hex)
5	00001010B (0A Hex)
6	00001100B (0C Hex)
7	00001110B (0E Hex)
8	00100000B (20 Hex)
9	00100010B (22 Hex)
10	00100100B (24 Hex)
・ ・ ・	・ ・ ・
16	01000000B (40 Hex)
・ ・ ・	・ ・ ・
30	01101100B (6C Hex)
31	01101110B (6E Hex)

Printer status #1 (3rd byte)

Bit	Contents	0	1
0	Always“0”		–
1	<ETB> command	Unexecuted	Executed
2	Compulsion switch	Open	Close
3	ON Line / OFF Line	ON Line	OFF Line
4	Always“0”		–
5	Cover open	Close	Open
6	OFF Line due to ON Line switch pushed		OFF Line
7	Always“0”		–

Printer status #2 (4th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Mechanical error		Error
3	Auto cutter error		Error
4	Always“0”		–
5	Un recoverable error		Error
6	Print stop due to high temperature print head		Stop
7	Always“0”		–

Printer status #3 (5th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Invalid		
3	Invalid		
4	Always“0”		–
5	Invalid		
6	Buffer overflow		Overflow
7	Always“0”		–

Printer status #4 (6th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Near-end		Near-end
3	Paper empty		Empty
4	Always“0”		–
5	Invalid		
6	Invalid		
7	Always“0”		–

Printer status #5 (7th byte)

Bit	Contents	0	1
0	Always“0”		–
1	Invalid		
2	Invalid		
3	Invalid		
4	Always“0”		–
5	Invalid		
6	Invalid		
7	Always“0”		–

FUNCTION Set status transmission condition

CODE <ESC> <RS> “a” *n*

HEX 1B 1E 61 *n*

REMARKS This command sets the status transmission condition.
n = “0” or <0> : ASB is invalid
n = “1” or <1> : ASB is valid

FUNCTION Select international character set

CODE <ESC> “N n1n2” <LF><NUL>

HEX 1B 4E n1n2 0A 00

REMARKS This command defines temporary change of the international character set.
For permanent change of the international character set, change memory switch settings by using<ESC> “#”.

n1n2	Country
00	U.S.A
01	France
02	Germany

n1n2	Country
03	UK
04	Denmark #1
05	Sweden

n1n2	Country
06	Itary
07	Spain #1
08	Japan

n1n2	Country
09	Norway
10	Denmark #2
11	Spain #2

n1n2	Country
12	Latin America

FUNCTION Register download character

CODE <ESC> "F *n1n2* ; *d1.…d48*" <LF><NUL>

HEX 1B 46 *n1n2* 3B *d1.…d48* 0A 00

REMARKS This command defines one download character.

n1n2 : Download character reference number.(00 to 31).
d1.…d48 : Character bit map data.
Note: Only standard size character (16 (W) × 24 (H) dots) can be defined as download characters.

FUNCTION Select "zero" style

CODE <ESC> "Z n" <LF><NUL>

HEX 1B 5A n 0A 00

REMARKS This command selects zero style, normal zero slashed zero.
n=0 : Select normal zero.
n=1 : Select slashed zero.

4. DP8340 MODE (TSP800 ONLY)

4-1. Command Summary

Control codes	Hexadecimal codes	Function	Page
<LF>	0A	Print and line feed instruction	70
<CR>	0D	Print and line feed instruction (Same as LF)	70
<SO>	0E	Expanded character instruction	70
<DC4>	14	Expanded character release	70
<ESC> "–" "1" <ESC> "–" <1>	1B 2D 31 1B 2D 01	Underline isrtruction	70
<ESC> "–" "0" <ESC> "–" <0>	1B 2D 30 1B 2D 00	Underline release	70
<SI>	0F	Inverted print instruction	71
<DC2>	12	Inverted print release	71
<ESC> "E"	1B 45	Emphasized print instruction	71
<ESC> "F"	1B 46	Emphasized print release	71
<ESC> "4"	1B 34	Highlighted character print instruction	71
<ESC> "5"	1B 35	Highlighted character print release	71
<ESC> "R" *n*	1B 52 *n*	International Character set selection	72
<ESC> "a" *n*	1B 61 *n*	n-line feed instruction	72
<ESC> "C" *n*	1B 43 *n*	Sets page length in lines	72
<ESC> "N" *n*	1B 4E *n*	Set bottom margin in lines	73
<ESC> "O"	1B 4F	Cancel bottom margin	73
<FF>	0C	Form feed	73
<ESC> "@"	1B 40	Printer initialization instruction	73
<ESC> <BEL> *n1 n2*	1B 07 *n1 n2*	Set peripheral unit drive pulse duration	73
<BEL>	07	Trigger peripheral unit drive #1	74
<FS>	1C	Trigger peripheral unit drive #1	74
<SUB>	1A	Trigger peripheral unit drive #2	74
<ENQ>	05	Enquiry	74
<CAN>	18	Clears print buffer	74

4-2. Command Specification

CODE	LF $(0A)_H$
FUNCTION	Print and line feed instruction
OUTLINE	The LF code causes the data in the line buffer to be printed, followed by a single line feed. When the line buffer is empty, only the feed takes place.

CODE	CR $(0D)_H$
FUNCTION	Print and line feed instruction
OUTLINE	Same function as of LF code. However, when the DIP switch 1-3 is ON, the CR code becomes invalid.

CODE	SO $(0E)_H$
FUNCTION	Expanded character instruction
OUTLINE	This code causes the printer to print expanded characters twice as wide as the regular ones. This remains in effect until a DC4 code is received.

CODE	DC4 $(14)_H$
FUNCTION	Release from expanded characters
OUTLINE	The expanded character instruction is released by the DC4 code, and the succeeding data is printed as regular width characters.

CODE	ESC-1 $(1B)_H$ $(2D)_H$ $(01)_H$ or $(1B)_H$ $(2D)_H$ $(31)_H$
FUNCTION	Underline mode selection
OUTLINE	All data received after this code is underlined until a ESC-0 is received.

CODE	ESC-0 $(1B)_H$ $(2D)_H$ $(00)_H$ or $(1B)_H$ $(2D)_H$ $(30)_H$
FUNCTION	Release from underline mode
OUTLINE	The underline mode selection is released by this code.

CODE SI
$(0F)_H$

FUNCTION Inverted print instruction

OUTLINE This function causes the printing to be inverted. This code must be received at the beginning of a line. If this code is received anywhere other than at the beginning of a line, it is disregarded. Accordingly, normal characters and inverted characters, can not be mixed on the same line.

CODE DC2
$(12)_H$

FUNCTION Release from inverted print instruction

OUTLINE The inverted print instruction is released by this code. This code must be received at the beginning of a line.

CODE ESC E
$(1B)_H$ $(45)_H$

FUNCTION Emphasized print mode instruction

OUTLINE Data following this command is printed with emphasized characters.

CODE ESC F
$(1B)_H$ $(46)_H$

FUNCTION Release from emphasized print instruction

OUTLINE Emphasized print is released.

CODE ESC 4
$(1B)_H$ $(34)_H$

FUNCTION Highlighted character print instruction

OUTLINE This command causes subsequent data to be printed with highlighted characters.
The instruction is released by the code, ESC 5.

CODE ESC 5
$(1B)_H$ $(35)_H$

FUNCTION Release from highlighted character print instruction

OUTLINE The highlighted character print instruction is released by this code.

CODE ESC R n
$(1B)_H$ $(52)_H$ n

FUNCTION International character set selection

OUTLINE Selects an international character set according to the value of n, as shown below:

n :	Character set	n :	Character set
0 :	U.S.A.	8 :	Japan
1 :	France	9 :	Norway
2 :	Germany	10 :	Denmark Ⅱ
3 :	England	11 :	Spain Ⅱ
4 :	Denmark I	12 :	Latin America
5 :	Sweden	13 :	Korea
6 :	Italy	14 :	Ireland
7 :	Spain I	64 :	Legal

CODE ESC a n
$(1B)_H$ $(61)_H$ n

FUNCTION n-line feed

OUTLINE After printing the data in the current line, n lines are fed by this code. The value of n ranges from 1 to 127.

CODE ESC C n
$(1B)_H$ $(43)_H$ n

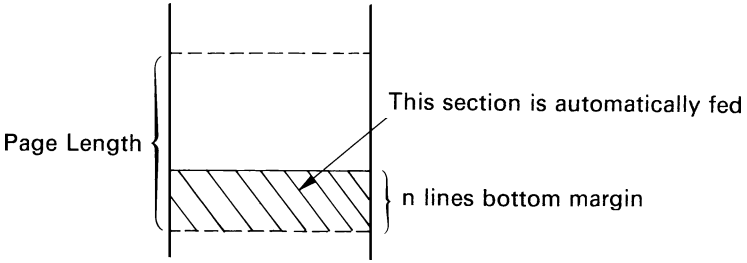
FUNCTION Sets page length in lines

OUTLINE This code sets the length of a page to n lines. The value of n ranges from 1 to 127. On initialization, the page length default condition will be 42 lines. The line feed pitch is one-sixth inch.

CODE ESC N n
$(1B)_H$ $(4E)_H$ n

FUNCTION Sets bottom margin in lines

OUTLINE Upon receiving this code, the bottom margin is set to n lines.
$0 \leqq n \leqq 255$; Default Value n = 0



CODE ESC O
$(1B)_H$ $(4F)_H$

FUNCTION Cancels bottom margin.

OUTLINE Upon input of this code, bottom margin setting is cleared.

CODE FF
$(0C)_H$

FUNCTION Form feed

OUTLINE The FF code prints the data in the current line and transports the paper to the start of the next page.

CODE ESC @
$(1B)_H$ $(40)_H$

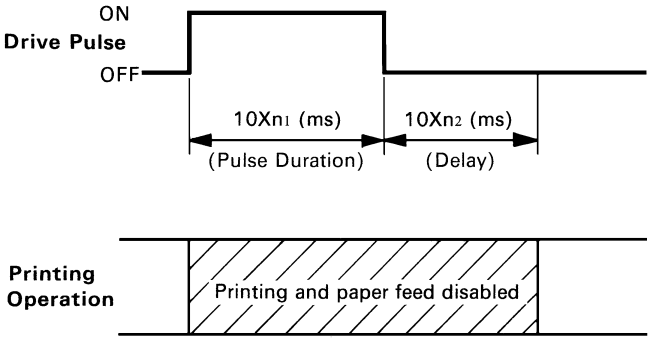
FUNCTION Printer initialization

OUTLINE All printing conditions except ESC BEL n_1 n_2, the line buffer and data buffer are set to the power on default condition.

CODE ESC BEL n_1 n_2
$(1B)_H$ $(07)_H$ n_1 n_2

FUNCTION Sets peripheral unit drive #1 pulse duration.

OUTLINE This command sets the pulse duration for peripheral unit drive (Paper Cutter, Take-Up Device, cash drawer, etc.)
Pulse Duration = $10 \times n_1$ (ms)
Delay = $10 \times n_2$ (ms)
$1 \leqq n_1 \leqq 127$; $1 \leqq n_2 \leqq 127$
Default value: $n_1 = n_2 = 20$



Executed by BEL code and FS code after printing.

CODE BEL
$(07)_H$

FUNCTION Trigger peripheral unit drive #1

OUTLINE Causes a peripheral drive pulse to be generated. This code is normally stored in the buffer and is performed as it is received from the data queue.

CODE FS
$(1C)_H$

FUNCTION Trigger peripheral unit drive #1

OUTLINE Causes a peripheral drive pulse to be generated immediately.

CODE SUB
$(1A)_H$

FUNCTION Trigger peripheral unit drive #2

OUTLINE Causes a peripheral drive pulse to be generated. The drive pulse width and delay time are fixed at 200 ms.

CODE ENQ
$(05)_H$

FUNCTION Enquiry

OUTLINE When this code is received, the printer outputs status data. If it is input after text data input in the STX-ETX mode, the printer outputs status data and the check byte.

CODE CAN
$(18)_H$

FUNCTION Clears print buffer

OUTLINE Upon input of this code the data buffer and line buffer is cleared.

5 : ESC/POS Mode Command Summary

Control Code	Hexadecimal Code	Function
HT	09	Horizontal tab
LF	0A	Print line feed
CR	0D	Carriage return
FF	0C	Page mode print and return
DLE EOT	10 04	Real time transmission of status
DLE ENQ	10 05	Real time request to printer
DLE DC4	10 14	Generate pulse at real time
CAN	18	Cancel print data in page mode
ESC FF	1B FF	Print page mode data
ESC SP	1B 20	Set right space amount of character
ESC !	1B 21	Select print mode
ESC $	1B 24	Designate absolute printing
ESC %	1B 25	Designate/cancel download character set
ESC &	1B 26	Define download characters
ESC *	1B 2A	Designate bit image mode
ESC -	1B 2D	Designate/cancel underline
ESC 2	1B 32	Set 1/6 inch line feed amount
ESC 3	1B 33	Set line feed amount
ESC =	1B 3D	Select peripheral equipment
ESC ?	1B 3F	Delete download characters
ESC @	1B 40	Initialize printer
ESC D	1B 44	Set horizontal tab position
ESC E	1B 45	Designate/cancel emphasized print
ESC G	1B 47	Designate/cancel double print
ESC J	1B 4A	Print and paper feed
ESC L	1B 4C	Select page mode
ESC M	1B 4D	Select character
ESC R	1B 52	Select an international character set
ESC S	1B 53	Select standard mode
ESC T	1B 54	Select character print direction in page mode
ESC V	1B 56	Designate/cancel 90° character rotation
ESC W	1B 57	Set print range in page mode
ESC \	1B 5C	Designate relative position
ESC a	1B 61	Align position
ESC c 3	IB 63 33	Select no-paper detector for output of no-paper signal
ESC c 4	1B 63 34	Select no valid paper detector at print stop
ESC c 5	1B 63 35	Enable/disable panel switch
ESC d	1B 64	Print and paper feed “*n*” lines

Control Code	Hexadecimal Code	Function
ESC p	1B 70	Designate pulse generation
ESC t	1B 74	Select character code table
ESC {	1B 7B	Designate/cancel inverted printing
FS g 1	1C 67 31	Write to user NV memory
FS g 2	1C 67 32	Read from user NV memory
FS p 1C	70	Print NV bit image
FS q *n*	1C 71	Define NV bit image
GS !	1D 21	Designate character size
GS $	1D 24	Designate absolute position of vertical direction of characters in page mode
GS *	1D 2A	Define download bit image
GS (A	1D 28 41	Execute test print
GS /	1D 2F	Print download bit image
GS :	1D 3A	Start/finish macro definition
GS B	1D 42	Designate/cancel reverse printing
GS E	1D 45	Select print speed and head energizing time
GS H	1D 48	Select print position of HRI characters
GS I	1D 49	Printer ID transmission
GS L	1D 4C	Set left margin
GS P	1D 50	Set basic calculated pitch
GS V	1D 56	Paper cut
GS W	1D 57	Set print range
GS \	1D 5C	Designate the relative position of vertical characters when printing in the page mode
GS ^	1D 5E	Execute macro
GS a	1D 61	Enable/disable automatic status transmission
Gs b	1D 62	Smoothing setting/cancel
GS f	1D 66	Select HRI character font
GS h	1D 68	Set bar code height
GS k	1D 6B	Printing of bar code
GS r	1D 72	Transmission of status
GS v 0	1D 76 00	Print raster bit image
GS w	1D 77	Set lateral size of bar code
ESC GS =	1B 1D 3D	Write to space code page
ESC GS t	1B 1D 74	Select character code table
ESC GS #	1B 1D 23	Set memory switch

Appendix 1 : How to set various bar codes

Refer to the industry standards reference material for the features and applications of each bar code symbology.
This section of this document covers the proper commands to select the bar code symbology required.

(1) CODE 39

CODE 39 can represent numeric characters from 0 to 9 and alphabetical characters A to Z. Width of each bar of bar code depends on the mode.
The number of dots for each element of the bar code in each mode is shown as below. The number of dots depends on whether the print direction is horizontal or vertical.

1) Length of each element in each mode

a) Horizontal printing

Item	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Width of narrow elements	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots
Width of wide elements	6 dots	9 dots	12 dots	5 dots	8 dots	10 dots	4 dots	6 dots	8 dots
Ratio	1 : 3	1 : 3	1 : 3	1 : 2.5	1 : 2.7	1 : 2.5	1 : 2	1 : 2	1 : 2
Inter-character space	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots
Length of one character (mm)	4	6	8	3.625	5.625	7.25	3.25	4.875	6.5

b) Vertical printing

In vertical printing, one dot is added to each white bar which is horizontally printed. (This is because the width of black bars is made wider due to the change of printing characteristics caused by heating of the printing head. As a result, the number of dots for white bars and for black bars are different even when white and black bars have the same narrow-element width. Length of each element is as shown below.

Item	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Length of one character (mm)	4.625	6.625	8.625	4.25	6.25	7.875	3.875	5.5	7.125

2) REQUIREMENTS

a) The Start code and the Stop code of CODE 39 are automatically added.

b) The position defined by the control command locates the bar code symbols. It is necessary to provide space for a quiet zone for bar code symbol.

3) ANSI and AIM specifications (for reference only)

a) Width of narrow elements:
Minimum 0.0075 inch (0.191 mm)

b) Ratio of narrow-element width to width-element width:
1 : 2.2 (the width of narrow elements is 0.508 mm or smaller)
1 : 2 (the width of narrow elements is 0.508 mm or greater)

c) Inter-element space:
Minimum is the same as the narrow-element width.
Maximum is three times the narrow-element width or 1.524 mm, whichever is greater.

d) Bar height:
For hand scanners, the minimum is 0.25 inch (6.35 mm) or 15% of the bar code-length, whichever is greater.
For non-hand scanners, the minimum is 0.8 inch (20.3 mm) or 25% of the bar code-length, whichever is greater.

e) Quiet zone:
Minimum is ten times the narrow-element width or 0.10 inch (2.54 mm), whichever is greater.
For hand scanners, the minimum is 0.25 inch (6.35 mm) or greater.

EXAMPLE Bar code string number 11 ,starting position of bar code (X,Y) = 10 mm, 10 mm, use Mode 2 of CODE39, Bar code height 10mm data:ABCDEFG, bar code rotation direction 0 degree.

```
LPRINT CHR$(&H1B);“PB11;0100;0100,2,1,0,0100”;
CHR$(&H0A);CHR$(&H00);
LPRINT CHR$(&H1B);“RB11;ABCDEFG”;CHR$(&H0A);
CHR$(&H00);
```

(2) Interleaved 2 of 5 (ITF)

This code can represent numeric characters from 0 to 9. This code can be used for an application that requires higher character density.
JIS and EAN specify that this code be used for printing on corrugated boxes.

1) Width of narrow elements and length of two characters

a) Horizontal printing

Item	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Width of narrow elements	2 dots	4 dots	6 dots	2 dots	4 dots	6 dots	2 dots	3 dots	4 dots
Width of wide element	5 dots	10 dots	15 dots	4 dots	8 dots	12 dots	6 dots	9 dots	12 dots
Ratio	1 : 2.5	1 : 2.5	1 : 2.5	1 : 2	1 : 2	1 : 2	1 : 3	1 : 3	1 : 3
Length of one character (mm)	4	8	12	3.5	7	10.5	4.5	6.75	9

b) Vertical printing

Item	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Length of two character (mm)	4.625	8.625	12.625	4.125	7.625	11.125	5.125	7.375	9.625

2) REQUIREMENTS

a) When this code is used, the start and stop patterns are automatically inserted.
b) When the number of digits for bar code data is an odd number, the printer automatically adds “0” in the highest digit position.
c) Details conform to the AIM, USS-12/5, ANSI, and JIS X 0502 specifications

EXAMPLE Bar code string number 25, starting position of bar code (X, Y) = 5 mm, 10 mm, use Mode 1 of ITF, Bar code height 10 mm
Data: 0123456, bar code rotation direction 0 degree

```
LPRINT CHR$(&H1B);“PB25;0050,0100,1,2,0,0100”;
CHR$(&H0A); CHR$(&H00);
LPRINT CHR$(&H1B);“RB25;0123456”; CHR$(&H0A);
CHR$(&H00);
```

(3) CODE 93

1) Each mode and module width

a) Horizontal printing

Item	Mode 1	Mode 2	Mode 3
Module width	2 dots	3 dots	4 dots
Width of one character (mm)	2.25	3.375	4.5

Note: The start and stop bars are not included.

b) Vertical printing

Item	Mode 1	Mode 2	Mode 3
Module width	2 dots	3 dots	4 dots
Width of one character (mm)	2.625	3.75	4.875

2) REQUIREMENTS

a) The start and stop patterns are automatically inserted.
b) The check characters are automatically inserted.
c) 2-character set codes are same as CODE 128. (Expect FNC1-4, and START A-C)

EXAMPLE Bar code number 00, starting position of bar code (X, Y) = 40 mm, 16 mm Mode 2 of CODE 93, Bar code rotation: 0 degree. Bar code height 10 mm, Data “ABCDefg”

```
LPRINT CHR$(&H1B);“PB00;0400,0160,2,3,0,0100”;
CHR$(&H0A);CHR$ (&H00);
LPRINT CHR$(&H1B);“RB00;ABCDefg”;
CHR$(&H0A);CHR$ (&H00);
```

(4) UPC (5) JAN/EAN-8 (6) JAN/EAN-13

These codes are common commodity codes, mainly used for miscellaneous goods or groceries sold at supermarkets.

1) Each mode and bar code width

a) Horizontal printing

Item	Mode 1	Mode 2	Mode 3
Module width	2 dots	3 dots	4 dots
Bar code width JAN/EAN-8	16.75 mm	25.125 mm	33.5 mm
JAN/EAN-13, UPC	23.75 mm	36.625 mm	47.5 mm

Note: Right and left guard bars are included, white spaces are not included.

b) Vertical printing

Item	Mode 1	Mode 2	Mode 3
Module width	2 dots	3 dots	4 dots
Bar code width JAN/EAN-8	13.375 mm	27.75 mm	36.125 mm
JAN/EAN-13, UPC	27.624 mm	39.5 mm	51.375 mm

Note: Right and left guard bars are included, white spaces are not included.

2) REQUIREMENTS

a) JAN/EAN-8
Must consist of a 7 or 8 numeric digits, otherwise, the command is ignored. The check digit is automatically added using modules 10/3 weight.
When the calculated value and the value in the 8th digit differ, the former value has precedence over the latter values.

b) JAN/EAN-13
Must consist of a 12 or 13 numeric digits; otherwise, the command is ignored. The check digit is automatically added using modules 10/3 weight.
When the calculated value and the value in the 13th digit differ, the former value has precedence over the latter values.

c) UPC-A Must consist of a 11 or 12 numeric digits, otherwise, the command is ignored. The check digit is automatically added using modules 10/3 weight.
When the calculated value and the value in the 12th digit differ, the former value has precedence over the latter values.

EXAMPLE Bar code string number 10, starting position of bar code (X, Y) = 5 mm, 10 mm, use Mode 1 of EAN-13, Bar code height 10 mm data:246801357956, bar code rotation direction 0 degree

```
LPRINT CHR$(&H1B);“PB10;0050,0100,1,6,0,0100”;
CHR$(&H0A);CHR$(&H00);
LPRINT CHR$(&H1B);“RB10;246801357956”;
CHR$(&H0A);CHR$(&H00);
```

(7) CODE 128

This code can represent 128 ASCII characters.

1) Each mode and module width

a) Horizontal printing Note: The start and stop bars are not included.

Item	Mode 1	Mode 2	Mode 3
Module width	2 dots	3 dots	4 dots
Width of one character	2.75 mm	4.125 mm	5.5 mm

b) Vertical printing

Item	Mode 1	Mode 2	Mode 3
Module width	2 dots	3 dots	4 dots
Width of one character	3.125 mm	4.5 mm	6.5 mm

2) REQUIREMENTS

%(25 H) is sent as data %0(25H 35H). Control codes 00H to 1FH and 7FH are sent as data % followed by 40H to 5FH and 35 H. For example, control code 7FH is sent as data %5 (25H 35H). Function codes are sent as data % followed by 1 to 4 (31H to 34H). The start code is sent as data % followed by 6 to 8(36H to 38H). Although CODE 128 data requires START CODE, the printer automatically adds START CODE. Please omit START CODE when sending data to the printer.

3) 2-character set codes

Control codes

Code	HEX	Format	HEX
NUL	00H	%@	25H 40H
SOH	01H	%A	25H 41H
STX	02H	%B	25H 42H
ETX	03H	%C	25H 43H
EOT	04H	%D	25H 44H
ENQ	05H	%E	25H 45H
ACK	06H	%F	25H 46H
BEL	07H	%G	25H 47H
BS	08H	%H	25H 48H
HT	09H	%I	25H 49H
LF	0AH	%J	25H 4AH
VT	0BH	%K	25H 4BH
FF	0CH	%L	25H 4CH
CR	0DH	%M	25H 4DH
SO	0EH	%N	25H 4EH
SI	0FH	%O	25H 4FH
DLE	10H	%P	25H 50H
DC1	11H	%Q	25H 51H
DC2	12H	%R	25H 52H
DC3	13H	%S	25H 53H
DC4	14H	%T	25H 54H
NAK	15H	%U	25H 55H
SYN	16H	%V	25H 56H
ETB	17H	%W	25H 57H
CAN	18H	%X	25H 58H
EM	19H	%Y	25H 59H
SUB	1AH	%Z	25H 5AH
ESC	1BH	%[	25H 5BH
FS	1CH	%×	25H 5CH
GS	1DH	%]	25H 5DH
RS	1EH	%^	25H 5EH
US	1FH	%	25H 5FH
DEL	7FH	%5	25H 35H

Special code

Code	HEX	Format	HEX
%	25H	%0	25H 30H

Function codes

Code	HEX	Format	HEX
FNC1		%1	25H 31H
FNC2		%2	25H 32H
FNC3		%3	25H 33H
FNC4		%4	25H 34H

Start codes

Code	HEX	Format	HEX
START A		%6	25H 36H
START B		%7	25H 37H
START C		%8	25H 38 H

EXAMPLE Bar code string number 00, starting position of bar code (X, Y) = 15 mm, 5 mm, use Mode 1 of CODE128, Bar code height 15 mm, data: 1213477657, and CR (carriage return)

```
LPRINT CHR$(&H1B);“PB00;0150,0050,1,7,0150”;
CHR$(&H0A);CHR$(&H00);
LPRINT CHR$(&H1B);“RB00;1213477657%M”;
CHR$(&H0A);CHR$(&H00);
```

(8) NW-7

NW-7 bar code can represent numeric characters 0 to 9 and special characters such as - , $, : , / , . , + with one of character from A to D as Start or Stop code in NW-7.

1) Width of character in each mode

Width of each bar code character varies since number of narrow bars and wide bars are different in each character.

Normal character

(number of narrow element : 5 , number of wide element : 2)
0 to 9 , $, -

Wide character

(number of narrow element : 4 , number of wide element : 3)
: , / , . , + , A to D

Length of each bar code character includes a space between characters.

a) Horizontal direction print

Item	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Width of narrow elements	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots
Width of wide element	6 dots	9 dots	12 dots	5 dots	8 dots	10 dots	4 dots	6 dots	8 dots
Ratio	1 : 3	1 : 3	1 : 3	1 : 2.5	1 : 2.7	1 : 2.5	1 : 2	1 : 2	1 : 2
Space between characters	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots	2 dots	3 dots	4 dots
Length of (Normal)(mm)	3	4.5	6	2.75	4.25	5.5	2.5	3.75	5
each character (Wide)(mm)	3.5	5.25	7	3.125	5.125	6.25	2.75	4.125	5.5

b) Vertical direction print

Item	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Mode 9
Length of (Normal)(mm)	3.5	5	6.5	3.25	4.75	6	3	4.25	5.5
each character (Wide)(mm)	4	5.75	7.5	3.625	5.625	6.75	3.25	4.625	6

Appendix 2 : Sensor adjustment mode

(1) No paper / Black mark sensor adjustment

Operation procedure

1) Select sensor adjustment mode with DIP switch setting.
2) Turn the power ON.
3) With the paper roll installed, turn and adjust VR2 until both POWER / ERROR LEDs light.
4) Turn the power OFF.
5) Select standard mode with DIP switch setting.

(2) Near-end sensor adjustment

Operation Procedure

1) Select sensor adjustment mode with DIP switch setting.
2) Turn the power ON while holding FEED switch pushed (POWER LED will lights), then release FEED switch immediately.
3) With the paper roll uninstalled, turn fully VR1 counterclockwise.
   If ERROR LED lights, adjustment is not necessary.
   If not, adjust VR1 until both POWER / ERROR LEDs light.
4) Install the paper roll and confirm that only POWER LED lights.
5) Turn the power OFF.
6) Select standard mode with DIP switch setting.

Appendix 3 : Character code tables

A3-1. STAR Line Mode

(Character table: Normal)

Hexa-decimal	0	1	2	3	4	5	6	7
0	<NUL> 0	16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	1	<DC1> 17	! 33	1 49	A 65	Q 81	a 97	q 113
2	<STX> 2	<DC2> 18	" 34	2 50	B 66	R 82	b 98	r 114
3	<ETX> 3	<DC3> 19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	<DC4> 20	$ 36	4 52	D 68	T 84	d 100	t 116
5	<ENQ> 5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	<BEL> 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	<CAN> 24	(40	8 56	H 72	X 88	h 104	x 120
9	<HT> 9	<EM> 25	) 41	9 57	I 73	Y 89	i 105	y 121
A	<LF> 10	<SUB> 26	* 42	: 58	J 74	Z 90	j 106	z 122
B	<VT> 11	<ESC> 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	<FF> 12	<FS> 28	, 44	< 60	L 76	\ 92	l 108	¦ 124
D	<CR> 13	<GS> 29	− 45	= 61	M 77	] 93	m 109	} 125
E	<SO> 14	<RS> 30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	<SI> 15	31	/ 47	? 63	O 79	_ 95	o 111	▩ 127

Note: The (7F)H code is a space when neither normal nor katakana.

APPENDIX

STAR Line Mode

(Character table: Normal)

Hexa-decimal	8	9	A	B	C	D	E	F
0	128	144	Ä 160	é 176	ù 192	ā 208	224	240
1	129	145	Ö 161	è 177	ū 193	â 209	225	241
2	130	146	Ü 162	ē 178	û 194	° 210	226	242
3	131	147	ß 163	ê 179	ç 195	℃ 211	227	243
4	132	148	§ 164	ï 180	¿ 196	℉ 212	228	244
5	133	149	a 165	í 181	N 197	Ω 213	229	245
6	134	150	o 166	ì 182	n 198	μ 214	230	246
7	135	151	f 167	ī 183	E 199	Σ 215	231	247
8	136	152	¢ 168	Î 184	ɔ 200	σ 216	232	248
9	137	153	1/2 169	ö 185	i 201	x 217	233	249
A	138	154	N T 170	ó 186	Å 202	TL 218	234	250
B	139	155	T X 171	ò 187	ϕ 203	X 219	235	251
C	140	156	¥ 172	o 188	θ 204	∞ 220	236	252
D	141	157	1/4 173	ô 189	ä 205	± 221	237	253
E	142	158	A 174	ü 190	á 206	÷ 222	238	254
F	143	159	ë 175	ú 191	à 207	π 223	239	255

APPENDIX

STAR Line Mode

(Character table: Code page 437)

Hexa-decimal	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	β 225	± 241
2	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	∙ 249
A	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	− 250
B	ï 139	¢ 155	½ 171	╗ 187	╦ 203	▉ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	▪ 220	∞ 236	∩ 252
D	ì 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	ϕ 237	² 253
E	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	Å 143	ƒ 159	» 175	┐ 191	╧ 207	▪ 223	∩ 239	255

Note: Other characters are the same as those for Character table: Normal.

APPENDIX

STAR Line Mode

(Character table: Katakana)

Hexa-decimal	8	9	A	B	C	D	E	F
0	128	144	160	ー 176	タ 192	ミ 208	224	240
1	129	145	○ 161	ア 177	チ 193	ム 209	225	241
2	130	146	「 162	イ 178	ツ 194	メ 210	226	242
3	131	147	」 163	ウ 179	テ 195	モ 211	227	243
4	132	148	、 164	エ 180	ト 196	ヤ 212	228	244
5	133	149	・ 165	オ 181	ナ 197	ユ 213	229	245
6	134	150	ヲ 166	カ 182	ニ 198	ヨ 214	230	246
7	135	151	ァ 167	キ 183	ヌ 199	ラ 215	231	247
8	136	152	ィ 168	ク 184	ネ 200	リ 216	232	248
9	137	153	ゥ 169	ケ 185	ノ 201	ル 217	233	249
A	138	154	ェ 170	コ 186	ハ 202	レ 218	234	250
B	139	155	ォ 171	サ 187	ヒ 203	ロ 219	235	251
C	140	156	ャ 172	シ 188	フ 204	ワ 220	236	252
D	141	157	ュ 173	ス 189	ヘ 205	ン 221	237	253
E	142	158	ョ 174	セ 190	ホ 206	゛ 222	238	254
F	143	159	ッ 175	ソ 191	マ 207	゜ 223	239	255

Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

Code Page #858
Multi-lingual

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	ð	ó	–
1	ü	æ	í	▒	┴	Ð	ß	±
2	é	Æ	ó	▒	┬	Ê	Ô	‗
3	â	ô	ú	│	├	Ë	Ò	¾
4	ä	ö	ñ	┤	─	È	õ	¶
5	à	ò	Ñ	Á	┼	€	Õ	§
6	å	û	ª	Â	ã	Í	µ	÷
7	ç	ù	º	À	Ã	Î	Þ	¸
8	ê	ÿ	¿	©	╚	Ï	þ	°
9	ë	Ö	®	╣	╔	┘	Ú	¨
A	è	Ü	¬	║	╩	┌	Û	•
B	ï	ø	½	╗	╦	█	Ù	¹
C	î	£	¼	╝	╠	▄	ý	³
D	ì	Ø	¡	¢	═	¦	Ý	²
E	Ä	×	«	¥	╬	Ì	¯	■
F	Å	ƒ	»	┐	¤	▀	´	

Code Page #852
Latin-2

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	đ	Ó	-
1	ü	Ĺ	í	▒	┴	Đ	ß	˝
2	é	í	ó	▒	┬	Ď	Ô	˛
3	â	ô	ú	│	├	Ë	Ń	ˇ
4	ä	ö	Ą	┤	─	ď	ń	˘
5	ů	Ľ	ą	Á	┼	Ň	ň	§
6	ć	ľ	Ž	Â	Ă	Í	Š	÷
7	ç	Ś	ž	Ě	ă	Î	š	¸
8	ł	ś	Ę	Ş	╚	ě	Ř	°
9	ë	Ö	ę	╣	╔	┘	Ú	¨
A	Ő	Ü		║	╩	┌	ŕ	•
B	ő	Ť	ź	╗	╦	█	Ű	ű
C	î	ť	Č	╝	╠	▄	ý	Ř
D	Ź	Ł	ş	Ż	=	Ţ	Ý	ř
E	Ä	×	«	ż	╬	Ü	ţ	■
F	Ć	č	»	┐	¤	▀	´	

Code Page #860
Portuguese

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	À	í	▒	┴	╤	β	±
2	é	È	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	│	├	╙	π	≤
4	ã	õ	ñ	┤	─	╘	Σ	⌠
5	à	ò	Ñ	╡	┼	╒	σ	⌡
6	Á	Ú	ª	╢	╞	╓	µ	÷
7	ç	ù	º	╖	╟	╫	τ	≈
8	ê	Ì	¿	╕	╚	╪	Φ	°
9	Ê	Õ	Ò	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	Í	¢	½	╗	╦	█	δ	√
C	Ô	£	¼	╝	╠	▄	∞	n
D	ì	Ù	¡	╜	═	▌	ø	²
E	Ã	₧	«	╛	╬	▐	∈	■
F	Â	Ó	»	┐	╧	▀	∩	

Code Page #861
Icelandic

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	æ	í	▒	┴	╤	β	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	│	├	╙	π	≤
4	ä	ö	Á	┤	─	╘	Σ	⌠
5	à	Þ	Í	╡	┼	╒	σ	⌡
6	å	û	Ó	╢	╞	╓	µ	÷
7	ç	Ý	Ú	╖	╟	╫	τ	≈
8	ê	ý	¿	╕	╚	╪	Φ	°
9	ë	Ö	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	Ð	ø	½	╗	╦	█	δ	√
C	ð	£	¼	╝	╠	▄	∞	n
D	Þ	Ø	¡	╜	═	▌	ø	²
E	Ä	₧	«	╛	╬	▐	∈	■
F	Å	ƒ	»	┐	╧	▀	∩	

Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

Code Page #863
Canadian French

	8	9	A	B	C	D	E	F
0	Ç	É	¦	▒	└	╙	α	≡
1	ü	È	´	▒	┴	╤	β	±
2	é	Ê	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	│	├	╙	π	≤
4	Â	Ë	¨	┤	─	╘	Σ	⌠
5	à	Ï	‸	╡	┼	╒	σ	⌡
6	¶	û	³	╢	╞	╓	µ	÷
7	ç	ù	¯	╖	╟	╫	τ	≈
8	ê	¤	Î	╕	╚	╪	Φ	°
9	ë	Ô	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	■	δ	√
C	î	£	¼	╝	╠	▄	∞	n
D	‗	Ù	¾	╜	═	▌	ø	²
E	À	û	«	╛	╬	▐	∈	■
F	§	ƒ	»	┐	╧	▀	∩	

Code Page #865
Nordic

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╙	α	≡
1	ü	æ	í	▒	┴	╤	β	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	│	├	╙	π	≤
4	ä	ö	ñ	┤	─	╘	Σ	⌠
5	à	ò	Ñ	╡	┼	╒	σ	⌡
6	å	û	ª	╢	╞	╓	µ	÷
7	ç	ù	º	╖	╟	╫	τ	≈
8	ê	ÿ	¿	╕	╚	╪	Φ	°
9	ë	Ö	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	ø	½	╗	╦	■	δ	√
C	î	£	¼	╝	╠	▄	∞	n
D	ì	Ø	¡	╜	═	▌	ø	²
E	Ä	₧	«	╛	╬	▐	∈	■
F	Å	ƒ	¤	┐	╧	▀	∩	

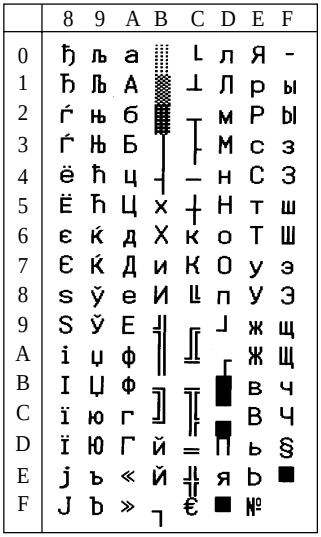
Code Page #866
Cyrillic Russian

	8	9	A	B	C	D	E	F
0	А	Р	а	▒	└	╙	р	Ё
1	Б	С	б	▒	┴	╤	с	ё
2	В	Т	в	▒	┬	╥	т	Є
3	Г	У	г	│	├	╙	у	є
4	Д	Ф	д	┤	─	╘	ф	Ї
5	Е	Х	е	╡	┼	╒	х	ї
6	Ж	Ц	ж	╢	╞	╓	ц	Ў
7	З	Ч	з	╖	╟	╫	ч	ў
8	И	Ш	и	╕	╚	╪	ш	°
9	Й	Щ	й	╣	╔	┘	щ	•
A	К	Ъ	к	║	╩	┌	ъ	·
B	Л	Ы	л	╗	╦	■	ы	√
C	М	Ь	м	╝	╠	▄	ь	№
D	Н	Э	н	╜	═	▌	э	¤
E	О	Ю	о	╛	╬	▐	ю	■
F	П	Я	п	┐	╧	▀	я	

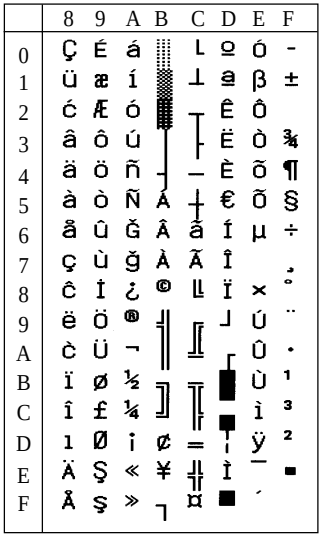
Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

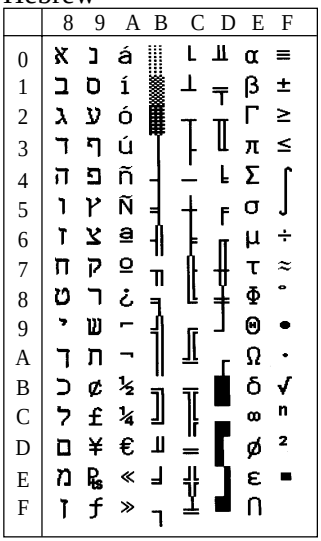
Code Page #855
Cyrillic Bulgarian



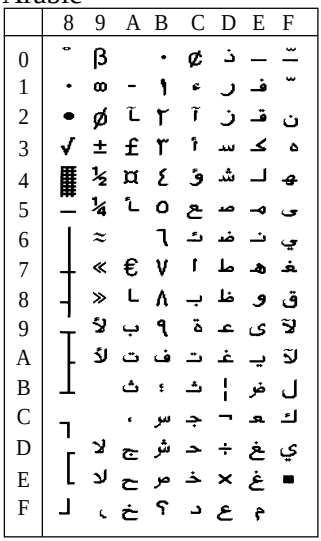
Code Page #857
Turkish



Code Page #862
Hebrew



Code Page #864
Arabic



Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

Code Page #737
Greek

	8	9	A	B	C	D	E	F
0	Α	Ρ	ι	▒	└	╙	ω	Ω
1	Β	Σ	κ	▒	┴	╤	ά	±
2	Γ	Τ	λ	▒	┬	╥	έ	≥
3	Δ	Υ	μ	│	├	╙	ή	≤
4	Ε	Φ	ν	┤	─	╘	ϊ	ΐ
5	Ζ	Χ	ξ	╡	┼	╒	ί	Ϋ
6	Η	Ψ	ο	╢	╞	π	ό	÷
7	Θ	Ω	π	╖	╟	╫	ύ	≈
8	Ι	α	ρ	╕	╚	╪	ϋ	°
9	Κ	β	σ	╣	╔	┘	ώ	∙
A	Λ	γ	ς	║	╩	┌	Ά	·
B	Μ	δ	τ	╗	╦	■	Έ	√
C	Ν	ε	υ	╝	╠	▪	Ή	n
D	Ξ	ζ	φ	╜	═	▌	Ί	2
E	Ο	η	χ	╛	╬	▐	Ό	■
F	Π	θ	ψ	┐	╧	▀	Ύ	

Code Page #851
Greek

	8	9	A	B	C	D	E	F
0	Ç	I	ϋ	▒	└	Τ	ξ	–
1	ü		ΰ	▒	┴	Υ	η	±
2	é	Ό	ó	▒	┬	Φ	Θ	υ
3	â	ô	ύ	│	├	Χ	ι	φ
4	ä	ö	Α	┤	─	Ψ	κ	χ
5	à	Υ	Β	Κ	┼	Ω	λ	§
6	Ά	û	Γ	Λ	Π	α	μ	ψ
7	ç	ù	Δ	Μ	Ρ	β	ν	‚
8	ê	Ώ	Ε	Ν	╚	γ	ξ	°
9	ë	ö	Ζ	╣	╔	┘	ο	¨
A	è	Ü	Η	║	╩	┌	π	ω
B	ï	ά	½	╗	╦	■	ρ	ϋ
C	î	£	Θ	╝	╠	▪	σ	ΰ
D	Ë	έ	Ι	Ξ	═	▌	ς	ώ
E	Ä	ή	«	Ο	╬	▐	τ	■
F	Ή	ί	»	┐	Σ	▀	΄	

Code Page #869
Greek

	8	9	A	B	C	D	E	F
0		Ί	ΐ	▒	└	Τ	ζ	–
1		Ϊ	Ϊ	▒	┴	Υ	η	±
2		Ό	ό	▒	┬	Φ	θ	υ
3			Ύ	▒	├	Χ	ι	φ
4			Α	▒	─	Ψ	κ	χ
5		Ύ	Β	Κ	┼	Ω	λ	ϛ
6	Ά	Ϋ	Γ	Λ	Π	α	μ	ψ
7	€	©	Δ	Μ	Ρ	β	ν	΄
8	-	Ώ	Ε	Ν	╚	γ	ξ	΅
9	‾	²	Ζ	╣	╔	┘	ο	¨
A	¦	³	Η	║	╩	┌	π	ω
B	'	ά	½	╗	╦	■	ρ	ΰ
C	`	£	Θ	╝	╠	▪	σ	ΰ
D	Έ	έ	Ι	Ξ	═	▌	ς	ώ
E	¯	ή	«	Ο	╬	▐	τ	■
F	Ή	ί	»	¬	Σ	▀	΄	

Code Page #928
Greek

	8	9	A	B	C	D	E	F
0				°	ΰ	Π	ϋ	π
1			‘	±	A	P	α	ϱ
2			’	²	B		β	ς
3			£	³	Γ	Σ	γ	σ
4				΄	Δ	T	δ	τ
5				¨	E	Y	ε	υ
6			¦	Ä	Z	Φ	ϛ	φ
7			§	·	H	X	η	χ
8			¨	Έ	Θ	Ψ	θ	ψ
9			©	H	I	Ω	ι	ω
A				I	K	ΐ	κ	ΰ
B			«	»	Λ	Ÿ	λ	ϋ
C			¬	Ό	M	ά	μ	ό
D				½	N	έ	ν	ύ
E				Ÿ	Ξ	ή	ϛ	ώ
F			¯	Ω	O	ί	ο	

Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

Code Page #772
Lithuanian

	8	9	A	B	C	D	E	F
0	А	Р	а	░	└	ą	р	Ё
1	Б	С	б	▒	┴	č	с	ё
2	В	Т	в	▓	┬	ę	т	≥
3	Г	У	г	│	├	ė	у	≤
4	Д	Ф	д	┤	─	į	ф	„
5	Е	Х	е	Ą	┼	š	х	"
6	Ж	Ц	ж	Č	Ų	ų	ц	÷
7	З	Ч	з	Ę	Ū	ū	ч	≈
8	И	Ш	и	Ė	╚	ž	ш	°
9	Й	Щ	й	╣	╔	┘	щ	•
A	К	Ъ	к	║	╩	┌	ъ	·
B	Л	Ы	л	╗	╦	█	ы	√
C	М	Ь	м	╝	╠	▄	ь	n
D	Н	Э	н	Į	=	▌	э	²
E	О	Ю	о	Š	╬	▐	ю	■
F	П	Я	п	┐	Ž	▀	я	

Code Page #774
Lithuanian

	8	9	A	B	C	D	E	F
0	Ç	É	á	░	└	ą	α	≡
1	ü	æ	í	▒	┴	č	β	±
2	é	Æ	ó	▓	┬	ę	Γ	≥
3	â	ô	ú	│	├	ė	π	≤
4	ä	ö	ñ	┤	─	į	Σ	„
5	à	ò	Ñ	Ą	┼	š	σ	"
6	å	û	ª	Č	Ų	ų	µ	÷
7	ç	ù	º	Ę	Ū	ū	τ	≈
8	ê	ÿ	¿	Ė	╚	ž	Φ	°
9	ë	Ö	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	█	δ	√
C	î	£	¼	╝	╠	▄	∞	n
D	ì	¥	¡	Į	=	▌	ø	²
E	Ä	Ą	«	Š	╬	▐	∈	■
F	Å	ƒ	»	┐	Ž	▀	∩	

Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

Code Page #874
Thai

	8	9	A	B	C	D	E	F
0	€	ๅ		ฑ	ภ	ะ	เ	๐
1	ะ	ๆ	ก	ท	ม	ั	แ	๑
2	ั	็	ข	ฒ	ย	า	โ	๒
3	ั	่	ข	ณ	ร	ำ	ใ	๓
4	ๅ	้	ค	ด	ฤ	ิ	ไ	๔
5	ะ	๊	ค	ต	ล	ิ	ๅ	๕
6	ั	๋	ฆ	ถ	ฦ	ิ	ๆ	๖
7	ั	์	ง	ท	ว	ิ	็	๗
8	ๅ	ํ	จ	ธ	ศ	ุ	่	๘
9	่	๎	ฉ	น	ษ	ู	้	๙
A	ั	๏	ช	บ	ส	ฺ	๊	๚
B	่	๐	ช	ป	ห	ฺ	๋	๛
C	ๅ	๑	ฌ	ผ	ฬ	็	์	¢
D	ะ	๒	ญ	ฝ	อ	๎	ํ	¬
E	ั	๓	ฎ	พ	ฮ	๊	๎	¦
F	่	๔	ฏ	ฟ	ฯ	๋	๏	

Code Page #1250
Windows Latin-2

	8	9	A	B	C	D	E	F
0	€			°	Ŕ	Đ	ŕ	đ
1		‘	˘	±	Á	Ń	á	ń
2	‚	’	ˇ	¸	Â	Ň	â	ň
3		“	Ł	ł	Ă	Ó	ă	ó
4	„	”	¤	˛	Ä	Ô	ä	ô
5	…	•	Ą	µ	Ĺ	Ő	Í	ő
6	†	-	ą	¶	Ć	Ö	ć	ö
7	‡	–	§	·	Ç	×	ç	÷
8			¨	¸	Č	Ř	č	ř
9	‰	™	©	ą	É	Ů	é	ů
A	Š	š	Ş	ş	Ę	Ú	ę	ú
B	<	>	«	»	Ë	Ű	ë	ű
C	Ś	ś		Ľ	Ě	Ü	ě	ü
D	Ť	ť	–	˝	Í	Ý	í	ý
E	Ž	ž	®	ľ	Î	Ţ	î	ţ
F	Ź	ź	Ż	ż	Ď	ß	đ	˙

Code Page #1251
Windows Cyrillic

	8	9	A	B	C	D	E	F
0	Ђ	ђ		°	А	Р	а	р
1	Ѓ	‘	ў	±	Б	С	б	с
2	‚	’	Ў	І	В	Т	в	т
3	ѓ	“	Ј	і	Г	У	г	у
4	„	”	¤	ґ	Д	Ф	д	ф
5	…	•	Ґ	µ	Е	Х	е	х
6	†	-	¦	¶	Ж	Ц	ж	ц
7	‡	–	§	·	З	Ч	з	ч
8	€		Ё	ё	И	Ш	и	ш
9	‰	™	©	№	Й	Щ	й	щ
A	Љ	љ	Є	є	К	Ъ	к	ъ
B	<	>	«	»	Л	Ы	л	ы
C	Њ	њ	¬	ј	М	Ь	м	ь
D	Ќ	ќ	-	S	Н	Э	н	э
E	Ћ	ћ	®	ѕ	О	Ю	о	ю
F	Џ	џ	Ї	ї	П	Я	п	я

Code Page #1252
Windows Latin-1

	8	9	A	B	C	D	E	F
0	€			°	À	Ð	à	ð
1		‘	¡	±	Á	Ñ	á	ñ
2	‚	’	¢	²	Â	Ò	â	ò
3	ƒ	“	£	³	Ã	Ó	ã	ó
4	„	”	¤	´	Ä	Ô	ä	ô
5	…	•	¥	µ	Å	Õ	å	õ
6	†	-	¦	¶	Æ	Ö	æ	ö
7	‡	–	§	·	Ç	×	ç	÷
8	ˆ	~	¨	¸	È	Ø	è	ø
9	‰	™	©	¹	É	Ù	é	ù
A	Š	š	ª	º	Ê	Ú	ê	ú
B	<	>	«	»	Ë	Û	ë	û
C	Œ	œ	¬	¼	Ì	Ü	ì	ü
D			–	½	Í	Ý	í	ý
E	Ž	ž	®	¾	Î	Þ	î	þ
F		Ÿ	¯	¿	Ï	ß	ï	ÿ

Note: Other characters are the same as those for Character table: Normal.

APPENDIX

STAR Line Mode

Code Page #3840
IBM-Russian

	8	9	A	B	C	D	E	F
0	А	Р	а	░	└	╙	р	≡
1	Б	С	б	▒	┴	╤	с	±
2	В	Т	в	▓	┬	╥	т	≥
3	Г	У	г	│	├	╙	у	≤
4	Д	Ф	д	┤	─	╘	ф	⌠
5	Е	Х	е	╡	┼	╒	х	⌡
6	Ж	Ц	ж	╢	╞	╓	ц	÷
7	З	Ч	з	╖	╟	╫	ч	≈
8	И	Ш	и	╕	╚	╪	ш	°
9	Й	Щ	й	╣	╔	┘	щ	•
A	К	Ъ	к	║	╩	┌	ъ	·
B	Л	Ы	л	╗	╦	▀	ы	√
C	М	Ь	м	╝	╠	▄	ь	n
D	Н	Э	н	╜	═	▌	э	²
E	О	Ю	о	╛	╬	▐	ю	■
F	П	Я	п	┐	╧	■	я	

Code Page #3841
Gost

	8	9	A	B	C	D	E	F
0	ғ	Ғ		0	ю	п	Ю	П
1	ə	Ə	!	1	а	я	А	Я
2	ё	Ё	"	2	б	р	Б	Р
3	і	І	#	3	ц	с	Ц	С
4	ї	Ї	¤	4	д	т	Д	Т
5	ј	Ј	%	5	е	у	Е	У
6	к	К	&	6	ф	ж	Ф	Ж
7	ө	Ө	'	7	г	в	Г	В
8	ў	Ў	(	8	х	ь	Х	Ь
9	ү	Ү	)	9	и	ы	И	Ы
A	ҳ	Ҳ	*	:	й	з	Й	З
B	ң	Ң	+	;	к	ш	К	Ш
C	ч	Ч	,	<	л	э	Л	Э
D	ҷ	Ҷ	−	=	м	щ	М	Щ
E	є	Є	.	>	н	ч	Н	Ч
F	£	Ъ	/	?	о	ъ	О	Ø

Code Page #3843
Polish

	8	9	A	B	C	D	E	F
0	Ç	Ę	Ź	░	└	╙	α	≡
1	ü	ę	Ż	▒	┴	╤	β	±
2	é	ł	ó	▓	┬	╥	Γ	≥
3	â	ô	Ó	│	├	╙	π	≤
4	ä	ö	ń	┤	─	╘	Σ	⌠
5	à	Ć	Ń	╡	┼	╒	σ	⌡
6	ą	û	ź	╢	╞	╓	µ	÷
7	ç	ù	ż	╖	╟	╫	τ	≈
8	ê	Ś	Ś	╕	╚	╪	Φ	°
9	ë	Ö	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	ź	½	╗	╦	▀	δ	√
C	î	Ł	¼	╝	╠	▄	∞	n
D	ć	¥	¡	╜	═	▌	ø	²
E	Ä	ś	«	╛	╬	▐	∈	■
F	Ą	ƒ	»	┐	╧	■	∩	

Code Page #3844
CS2

	8	9	A	B	C	D	E	F
0	Č	É	á	░	└	╙	α	≡
1	ü	ž	í	▒	┴	╤	β	±
2	é	Ž	ó	▓	┬	╥	Γ	≥
3	ď	ô	ú	│	├	╙	π	≤
4	ä	ö	ň	┤	─	╘	Σ	⌠
5	Ď	ó	Ň	╡	┼	╒	σ	⌡
6	Ť	ů	Ů	╢	╞	╓	µ	÷
7	č	Ú	ô	╖	╟	╫	τ	≈
8	ě	ý	š	╕	╚	╪	Φ	°
9	É	ö	ř	╣	╔	┘	Θ	•
A	ĺ	Ü	ŕ	║	╩	┌	Ω	·
B	ť	Š	Ř	╗	╦	▀	δ	√
C	ř	Ľ	¼	╝	╠	▄	∞	n
D	í	Ý	§	╜	═	▌	ø	²
E	Ä	Ř	«	╛	╬	▐	∈	■
F	Á	ť	»	┐	╧	■	∩	

Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

Code Page #3845
Hungarian

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╙	α	≡
1	ü	æ	í	▒	┴	╤	β	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ő	ú	┤	├	╙	π	≤
4	ä	ö	ñ	┤	─	╞	Σ	⌠
5	à	Ó	Ñ	╡	┼	╞	σ	⌡
6	å	ű	ª	╢	╞	╥	µ	÷
7	ç	Ú	Ő	╖	╟	╫	τ	≈
8	ê	ű	¿	╕	╚	╪	Φ	°
9	ë	ö	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	▉	δ	√
C	î	£	¼	╝	╠	▄	∞	n
D	ĺ	¥	¡	╜	=	▌	ø	²
E	Ä	Ł	«	╛	╬	▐	∈	■
F	Á	ś	»	┐	╧	▀	∩	

Code Page #3846
Turkish

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╙	α	≡
1	ü	æ	í	▒	┴	╤	β	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	┤	├	╙	π	≤
4	ä	ö	ñ	┤	─	╞	Σ	⌠
5	à	ò	Ñ	╡	┼	╞	σ	⌡
6	å	û	Ğ	╢	╞	╥	µ	÷
7	ç	ù	ğ	╖	╟	╫	τ	≈
8	ê	İ	ı	╕	╚	╪	Φ	°
9	ë	ö	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	▉	δ	√
C	î	£	¼	╝	╠	▄	∞	n
D	ı	¥	¡	╜	=	▌	ø	²
E	Ä	Ş	«	╛	╬	▐	∈	■
F	Â	ş	»	┐	╧	▀	∩	

Code Page #3847
Brazil-ABNT

	8	9	A	B	C	D	E	F
0				°	À	Ð	à	ð
1			¡	±	Á	Ñ	á	ñ
2			¢	²	Â	Ò	â	ò
3			£	³	Ã	Ó	ã	ó
4			¤	´	Ä	Ô	ä	ô
5			¥	µ	Å	Õ	å	õ
6			¦	¶	Æ	Ö	æ	ö
7			§	•	Ç		ç	
8			¨	¸	È	Ø	è	ø
9			©	¹	É	Ù	é	ù
A			ª	º	Ê	Ú	ê	ú
B			«	»	Ë	Û	ë	û
C			¬	¼	Ì	Ü	ì	ü
D			⌐	½	Í	Ý	í	ý
E			®	¾	Î	Þ	î	þ
F			¯	¿	Ï	ß	ï	

Code Page #3848
Brazil-ABICOMP

	8	9	A	B	C	D	E	F
0				Ò	¡	ò		
1			À	Ó	à	ó		
2			Á	Ô	á	ô		
3			Â	Õ	â	õ		
4			Ã	Ö	ã	ö		
5			Ä	Æ	ä	æ		
6			Ç	Ù	ç	ù		
7			È	Ú	è	ú		
8			É	Û	é	û		
9			Ê	Ü	ê	ü		
A			Ë	Ý	ë	ý		
B			Ì		ì	ß		
C			Í	£	í	ª		
D			Î	¦	î	º		
E			Ï	§	ï	¿		
F			Ñ	°	ñ	±		

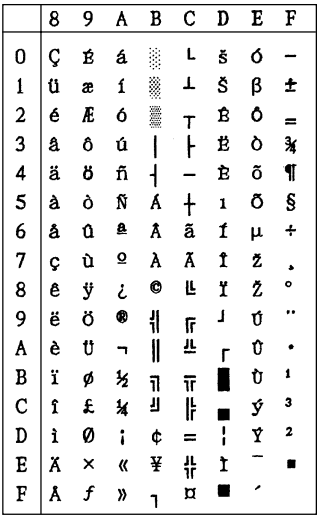
Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

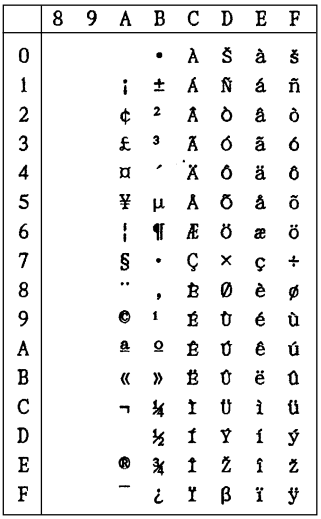
Code Page #1001
Arabic

Code Page #2001
Lithuanian-KBL

Code Page #3001
Estonian-1



Code Page #3002
Estonian-2



Note: Other characters are the same as those for Character table: Normal.

STAR Line Mode

Code Page #3011
Latvian-1

	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	Š	α	Ē
1	ü	æ	í	▒	┴	┬	β	ē
2	é	Æ	ó	▒	┬	č	Γ	Ģ
3	â	ô	ú	│	├	Č	π	ķ
4	ä	ö	ñ	┤	─	┼	Σ	Ķ
5	à	ò	Ñ	Ā	┼	╞	σ	ļ
6	å	û	ª	╟	ā	ģ	µ	Ļ
7	ç	ù	º	╚	╟	Ī	τ	ž
8	ê	ÿ	¿	╕	╚	ī	Φ	Ž
9	ë	Ö	⌐	╣	╔	┘	Θ	•
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	█	δ	√
C	î	£	¼	╝	╠	▄	∞	Ņ
D	ì	¥	¡	╜	═	ū	ø	š
E	Ä	₧	«	╛	╬	Ū	∈	■
F	Å	ƒ	»	┐	╧	▀	∩	

Code Page #3012
Latvian-2

	8	9	A	B	C	D	E	F
0	А	Р	а	▒	└	Š	р	Ē
1	Б	С	б	▒	┴	┬	с	ē
2	В	Т	в	▒	┬	č	т	Ģ
3	Г	У	г	│	├	Č	у	ķ
4	Д	Ф	д	┤	─	┼	ф	Ķ
5	Е	Х	е	Ā	┼	╞	х	ļ
6	Ж	Ц	ж	╟	ā	ģ	ц	Ļ
7	З	Ч	з	╚	╟	Ī	ч	ž
8	И	Ш	и	╕	╚	ī	ш	Ž
9	Й	Щ	й	╣	╔	┘	щ	•
A	К	Ъ	к	║	╩	┌	ъ	·
B	Л	Ы	л	╗	╦	█	ы	√
C	М	Ь	м	╝	╠	▄	ь	Ņ
D	Н	Э	н	Ō	═	ū	э	š
E	О	Ю	о	╛	╬	Ū	ю	■
F	П	Я	п	┐	╧	▀	я	

Note: Other characters are the same as those for Character table: Normal.

Code Page #3021
Bulgarian

	8	9	A	B	C	D	E	F
0	А	Р	а	р	└	▒	α	≡
1	Б	С	б	с	┴	▒	β	±
2	В	Т	в	т	┬	▒	Γ	≥
3	Г	У	г	у	├	│	π	≤
4	Д	Ф	д	ф	─	┤	Σ	⌠
5	Е	Х	е	х	┼	№	σ	⌡
6	Ж	Ц	ж	ц	╡	§	µ	÷
7	З	Ч	з	ч	╢	╗	τ	≈
8	И	Ш	и	ш	╕	╝	Φ	°
9	Й	Щ	й	щ	╖	┘	Θ	•
A	К	Ъ	к	ъ	╜	┌	Ω	·
B	Л	Ы	л	ы	╗	█	δ	√
C	М	Ь	м	ь	╝	▄	∞	n
D	Н	Э	н	э	=	▌	ø	²
E	О	Ю	о	ю	╬	▐	∈	■
F	П	Я	п	я	╧	▀	∩	

Note: Other characters are the same as those for Character table: Normal.

Code Page #3041
Maltese

	0	1	2	3	4	5	6	7
0				0	@	P	ċ	p
1			!	1	A	Q	a	q
2			"	2	B	R	b	r
3			#	3	C	S	c	s
4			$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9			)	9	I	Y	i	y
A			*	:	J	Z	j	z
B			+	;	K	ġ	k	ġ
C			,	<	L	ż	l	ż
D			-	=	M	ħ	m	Ħ
E			.	>	N	^	n	Ċ
F			/	?	O	_	o	

Note: Other characters are the same as those for Code Page #437.

STAR Line Mode

International Character Set

The character codes shown in the table are hexadecimal.

Conuntry	23	24	40	58	5A	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	$	@	X	Z	[	\	]	^	`	{	¦	}	~
FRANCE	#	$	à	X	Z	°	ç	§	^	`	é	ù	è	¨
GERMANY	#	$	§	X	Z	Ä	ö	Ü	^	`	ä	ö	ü	ß
ENGLAND	£	$	@	X	Z	[	\	]	^	`	{	¦	}	~
DENMARK 1	#	$	@	X	Z	Æ	Ø	Å	^	`	æ	ø	å	~
SWEDEN	#	¤	É	X	Z	Ä	ö	Å	Ü	é	ä	ö	å	ü
ITALY	#	$	@	X	Z	°	\	é	^	ù	à	ò	è	ì
SPAIN 1	₧	$	@	X	Z	¡	Ñ	¿	^	´	¨	ñ	}	~
JAPAN	#	$	@	X	Z	[	¥	]	^	`	{	¦	}	~
NORWAY	#	¤	É	X	Z	Æ	Ø	Å	Ü	é	æ	ø	å	ü
DENMARK 2	#	$	É	X	Z	Æ	Ø	Å	Ü	é	æ	ø	å	ü
SPAIN 2	#	$	á	X	Z	¡	Ñ	¿	é	´	í	ñ	ó	ú
LATIN AMERICA	#	$	á	X	Z	¡	Ñ	¿	é	ü	í	ñ	ó	ú
KOREA	#	$	@	X	Z	[	₩	]	^	`	{	¦	}	~
IRELAND	#	$	@	Ú	´	[	\	]	^	`	Á	É	Ó	~
LEGAL	#	$	§	X	Z	°	'	"	¶	`	©	®	†	™

APPENDIX

A3-2. STAR Page Mode

	0	1	2	3	4	5	6	7
0	<NUL> 0	16	32	0 48	@ 64	P 80	` 96	p 112
1	<SOH> 1	<DC1> 17	! 33	1 49	A 65	Q 81	a 97	q 113
2	<STX> 2	18	" 34	2 50	B 66	R 82	b 98	r 114
3	<ETX> 3	<DC3> 19	# 35	3 51	C 67	S 83	c 99	s 115
4	<EOT> 4	20	$ 36	4 52	D 68	T 84	d 100	t 116
5	<ENQ> 5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	<ACK> 6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	24	(40	8 56	H 72	X 88	h 104	x 120
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	<LF> 10	26	* 42	: 58	J 74	Z 90	j 106	z 122
B	11	<ESC> 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	12	28	, 44	< 60	L 76	\ 92	l 108	¦ 124
D	<CR> 13	29	− 45	= 61	M 77	] 93	m 109	} 125
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	15	31	/ 47	? 63	O 79	_ 95	o 111	127

APPENDIX

STAR Page Mode

(Character type: Small size or standard)

Hexa-decimal	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	176	192	208	α 224	≡ 240
1	ü 129	æ 145	í 161	177	193	209	β 225	± 241
2	é 130	Æ 146	ó 162	178	194	210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	179	195	211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	180	196	212	Σ 228	244
5	à 133	ò 149	Ñ 165	181	197	213	σ 229	245
6	å 134	û 150	a 166	182	198	214	μ 230	÷ 246
7	ç 135	ù 151	o 167	183	199	215	τ 231	≈ 247
8	ê 136	ÿ 152	¿ 168	184	200	216	Φ 232	° 248
9	ë 137	Ö 153	169	185	201	217	Θ 233	∙ 249
A	è 138	Ü 154	¬ 170	186	202	218	Ω 234	− 250
B	ï 139	155	1/2 171	187	203	219	δ 235	√ 251
C	î 140	£ 156	1/4 172	188	204	220	∞ 236	∩ 252
D	ì 141	¥ 157	¡ 173	189	205	221	φ 237	2 253
E	Ä 142	₧ 158	« 174	190	206	222	∈ 238	■ 254
F	Å 143	ƒ 159	» 175	191	207	223	∩ 239	255

APPENDIX

STAR Page Mode
(Character type: Boldface)

Hexa-decimal	8	9	A	B	C	D	E	F
0	128	É 144	á 160	176	192	208	224	240
1	ü 129	æ 145	í 161	177	193	209	β 225	241
2	é 130	Æ 146	ó 162	178	194	210	226	242
3	131	147	ú 163	179	195	211	227	243
4	ä 132	ö 148	ñ 164	180	196	212	228	244
5	à 133	ò 149	Ñ 165	181	197	213	229	245
6	å 134	150	166	182	198	214	230	246
7	ç 135	ù 151	167	183	199	215	231	247
8	136	152	¿ 168	184	200	216	232	° 248
9	137	Ö 153	169	185	201	217	233	249
A	è 138	Ü 154	170	186	202	218	234	250
B	139	155	171	187	203	219	235	251
C	140	£ 156	172	188	204	220	236	252
D	Ì 141	¥ 157	¡ 173	189	205	221	ϕ 237	253
E	Ä 142	Pt 158	174	190	206	222	238	254
F	Å 143	159	175	191	207	223	239	255

APPENDIX

STAR Page Mode
International Character Set

	35	36	64	91	92	93	94	96	123	124	125	126
U. S. A.	#	$	@	[	\	]	^	`	{	|	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
England	£	$	@	[	\	]	^	`	{	|	}	~
Denmark 1	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain 1	₧	$	@	¡	Ñ	¿	^	'	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	|	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark 2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain 2	#	$	á	¡	Ñ	¿	é	'	í	ñ	ó	ú
Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú

A3-3. DP8340 Mode

(U.S.A. & Europe)

Hexa-decimal	0	1	2	3	4	5	6	7
0	0	16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113
2	2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	DC4 20	$ 36	4 52	D 68	T 84	d 100	t 116
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	CAN 24	(40	8 56	H 72	X 88	h 104	x 120
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122
B	11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	¦ 124
D	CR 13	29	− 45	= 61	M 77	] 93	m 109	} 125
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	▩ 127

(SP: Space)

Hexa-decimal	8	9	A	B	C	D	E	F
0	SP 128	144	Ä 160	é 176	ù 192	ā 208	224	240
1	129	145	Ö 161	è 177	ū 193	â 209	225	241
2	130	146	Ü 162	ē 178	û 194	° 210	226	242
3	131	147	β 163	ê 179	ç 195	°C 211	227	243
4	132	148	§ 164	ï 180	¿ 196	°F 212	228	244
5	133	149	a 165	ſ 181	Ñ 197	Ω 213	229	245
6	134	150	o 166	ì 182	ñ 198	μ 214	230	246
7	135	151	f 167	ī 183	Ē 199	Σ 215	231	247
8	136	152	ℂ 168	î 184	Ɔ 200	σ 216	232	248
9	137	153	½ 169	ö 185	i 201	x̄ 217	233	249
A	138	154	N T 170	ó 186	Å 202	T_L 218	234	250
B	139	155	T X 171	ò 187	ϕ 203	X 219	235	251
C	140	156	¥ 172	ō 188	θ 204	∞ 220	236	252
D	141	157	¼ 173	ô 189	ä 205	± 221	237	253
E	142	158	Ā 174	ü 190	á 206	÷ 221	238	254
F	143	159	ë 175	ú 191	à 207	π 223	239	255

(SP: Space)

APPENDIX

DP8340 Mode

(IBM Character Set #1)

Hexa-decimal	0	1	2	3	4	5	6	7
0	0	16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113
2	2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	DC4 20	$ 36	4 52	D 68	T 84	d 100	t 116
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	CAN 24	(40	8 56	H 72	X 88	h 104	x 120
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122
B	11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	¦ 124
D	CR 13	29	− 45	= 61	M 77	] 93	m 109	} 125
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	127

(SP: Space)

Hexa-decimal	8	9	A	B	C	D	E	F
0	128	144	á 160	⣿ 176	└ 192	╙ 208	α 224	≡ 240
1	129	145	í 161	▓ 177	┴ 193	╤ 209	β 225	± 241
2	130	DC2 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	131	147	ú 163	┃ 179	├ 195	╙ 211	π 227	≤ 243
4	132	DC4 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	133	149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	134	150	ª 166	╢ 182	╞ 198	╓ 214	μ 230	÷ 246
7	BEL 135	151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	136	CAN 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	137	153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	∙ 249
A	LF 138	SUB 154	¬ 170	╗ 186	╩ 202	┌ 218	Ω 234	· 250
B	139	ESC 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	FF 140	FS 156	¼ 172	╝ 188	╠ 204	▬ 220	∞ 236	n 252
D	CR 141	157	¡ 173	╜ 189	═ 205	▮ 221	ø 237	² 253
E	SO 142	158	« 174	╛ 190	╬ 206	▮ 222	∈ 238	■ 254
F	SI 143	159	» 175	┐ 191	╧ 207	■ 223	∩ 239	255

APPENDIX

DP8340 Mode

(IBM Character Set #2)

Hexa-decimal	0	1	2	3	4	5	6	7
0	0	16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113
2	2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114
3	♥ 3	19	# 35	3 51	C 67	S 83	c 99	s 115
4	♦ 4	DC4 20	$ 36	4 52	D 68	T 84	d 100	t 116
5	♣ 5	§ 21	% 37	5 53	E 69	U 85	e 101	u 117
6	♠ 6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	CAN 24	(40	8 56	H 72	X 88	h 104	x 120
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122
B	11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	¦ 124
D	CR 13	29	− 45	= 61	M 77	] 93	m 109	} 125
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	127

(SP: Space)

Hexa-decimal	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	ü 129	æ 145	í 161	▓ 177	┴ 193	╤ 209	β 225	± 241
2	é 130	Æ 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	∙ 249
A	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	ï 139	¢ 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	ì 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	Å 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	255

APPENDIX

DP8340 Mode

(JAPAN)

Hexa-decimal	0	1	2	3	4	5	6	7
0	0	16	SP 32	0 48	@ 64	P 80	' 96	p 112
1	1	17	! 33	1 49	A 65	Q 81	a 97	q 113
2	2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114
3	3	19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	DC4 20	$ 36	4 52	D 68	T 84	d 100	t 116
5	5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	CAN 24	(40	8 56	H 72	X 88	h 104	x 120
9	9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122
B	11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	FF 12	FS 28	, 44	< 60	L 76	¥ 92	l 108	| 124
D	CR 13	29	− 45	= 61	M 77	] 93	m 109	} 125
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	‾ 126
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	▩ 127

(SP: Space)

Hexa-decimal	8	9	A	B	C	D	E	F
0	SP 128	144	SP 160	— 176	タ 192	ミ 208	224	240
1	129	145	。 161	ア 177	チ 193	ム 209	225	241
2	130	146	「 162	イ 178	ツ 194	メ 210	226	242
3	131	147	」 163	ウ 179	テ 195	モ 211	227	243
4	132	148	、 164	エ 180	ト 196	ヤ 212	228	244
5	133	149	・ 165	オ 181	ナ 197	ユ 213	229	245
6	134	150	ヲ 166	カ 182	ニ 198	ヨ 214	230	246
7	135	151	ァ 167	キ 183	ヌ 199	ラ 215	231	247
8	136	152	ィ 168	ク 184	ネ 200	リ 216	232	248
9	137	153	ゥ 169	ケ 185	ノ 201	ル 217	233	249
A	138	154	ェ 170	コ 186	ハ 202	レ 218	234	250
B	139	155	ォ 171	サ 187	ヒ 203	ロ 219	235	251
C	140	156	ャ 172	シ 188	フ 204	ワ 220	236	252
D	141	157	ュ 173	ス 189	ヘ 205	ン 221	237	253
E	142	158	ョ 174	セ 190	ホ 206	゛ 222	238	254
F	143	159	ッ 175	ソ 191	マ 207	゜ 223	239	255

(SP: Space)

APPENDIX

DP8340 Mode

International Character Set

Hexadecimal	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	$	@	[	\	]	^	`	{	¦	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
England	£	$	@	[	\	]	^	`	{	¦	}	~
Denmark	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain	₧	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	|	}	¯

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